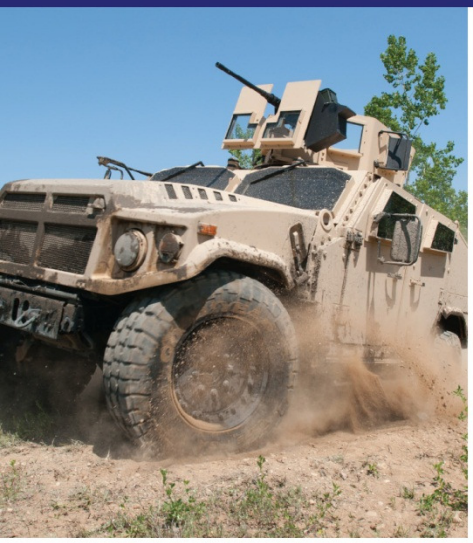

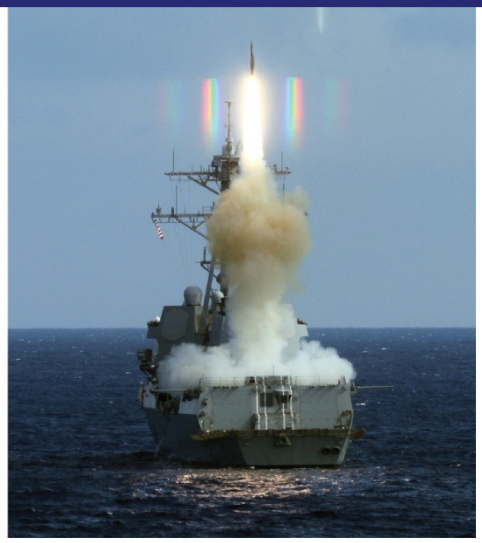

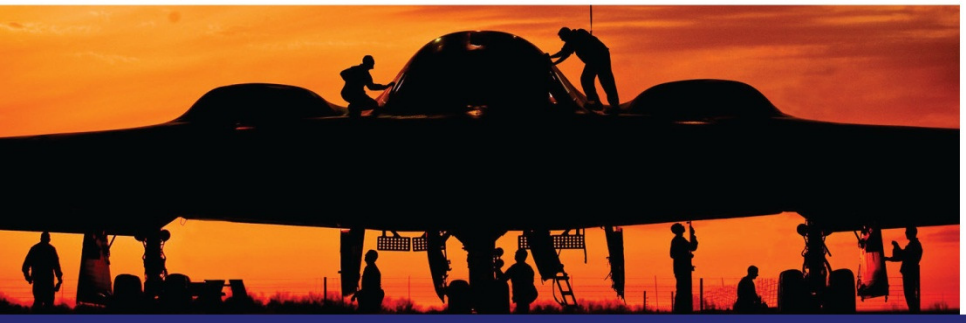

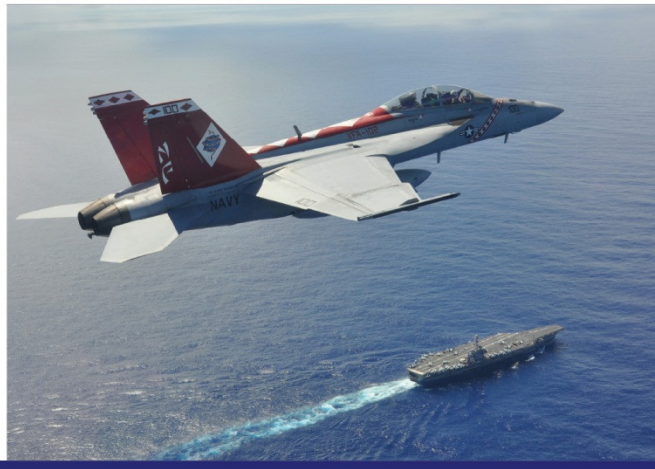

Guide to Environment, Safety, and Occupational Health (ESOH)

in the

Systems Engineering Plan (SEP) Programmatic ESOH Evaluation (PESHE)

and

National Environmental Policy Act (NEPA)/ Executive Order (EO) 12114 Compliance Schedule

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PREFACE

Environment, Safety, and Occupational Health (ESOH) considerations need to be included in the Systems Engineering Plan (SEP), Programmatic ESOH Evaluation, and National Environmental Policy Act (NEPA)/Executive Order (EO) 12114 Compliance Schedule. This Guide will assist Program Offices in improving the efficiency of document preparation. This Guide also offers strategies to minimize duplication between the SEP, PESHE, and the NEPA/EO 12114 Compliance Schedule in support of the Better Buying Power 2.0 initiative.

A cross-functional team of Government and contractor subject matter experts from the Office of the Secretary of Defense and the Department of Defense (DoD) Components, with funding from the Defense Safety Oversight Council, developed this Guide. It incorporates best practices and lessons learned through years of oversight and assistance to acquisition programs and Program Support Reviews across the Services.

Acquisition Program Managers, Systems Engineers, and ESOH subject matter experts should use this Guide to supplement the requirements in DoD Directive 5000.01 and DoD Instruction 5000.02, as well as guidance in the Defense Acquisition Guidebook. As a result, Program should be more effective in documenting ESOH planning and implementation efforts in accordance with the aforementioned acquisition policy and guidance.

INTRODUCTION

Department of Defense Instruction (DoDI) 5000.02 requires programs to generate two Environment, Safety, and Occupational Health (ESOH)-specific documents – the Programmatic ESOH Evaluation (PESHE) and the National Environmental Policy Act (NEPA)/Executive Order (EO) 12114 Compliance Schedule. In addition, DoDI 5000.02 requires the inclusion of ESOH management planning information in the Systems Engineering Plan (SEP). Together, these three documents form the foundation of the Program's ESOH planning and reflect the ESOH execution effort to systems engineering (SE), thereby supporting informed decisions. This document provides guidance to streamline the preparation of ESOH content in these three acquisition program documents.

DoD Acquisition uses Military Standard (MIL-STD)-882E, *DoD Standard Practice for System Safety*, definition for the acronym ESOH:

> *"An acronym that refers to the combination of disciplines that encompass the processes and approaches for addressing laws, regulations, EO, DoD policies, environmental compliance, and hazards associated with environmental impacts, system safety (e.g., platforms, systems, system-of-systems, weapons, explosives, software, ordnance, combat systems), occupational safety and health, hazardous materials management, and pollution prevention."*

DoDI 5000.02, *Operation of the Defense Acquisition System*, requires programs to conduct ESOH planning and various analyses throughout the acquisition process as part of the overall approach for developing and executing stable, affordable, and well-managed acquisition programs:

- Manage ESOH design considerations as an integral part of systems engineering;
- Eliminate hazards whenever possible and mitigate ESOH risks when hazards cannot be eliminated;
- Comply with NEPA and EO 12114, Environmental Effects Abroad of Major Federal Actions; and
- Ensure compliance with statutory and regulatory ESOH requirements.

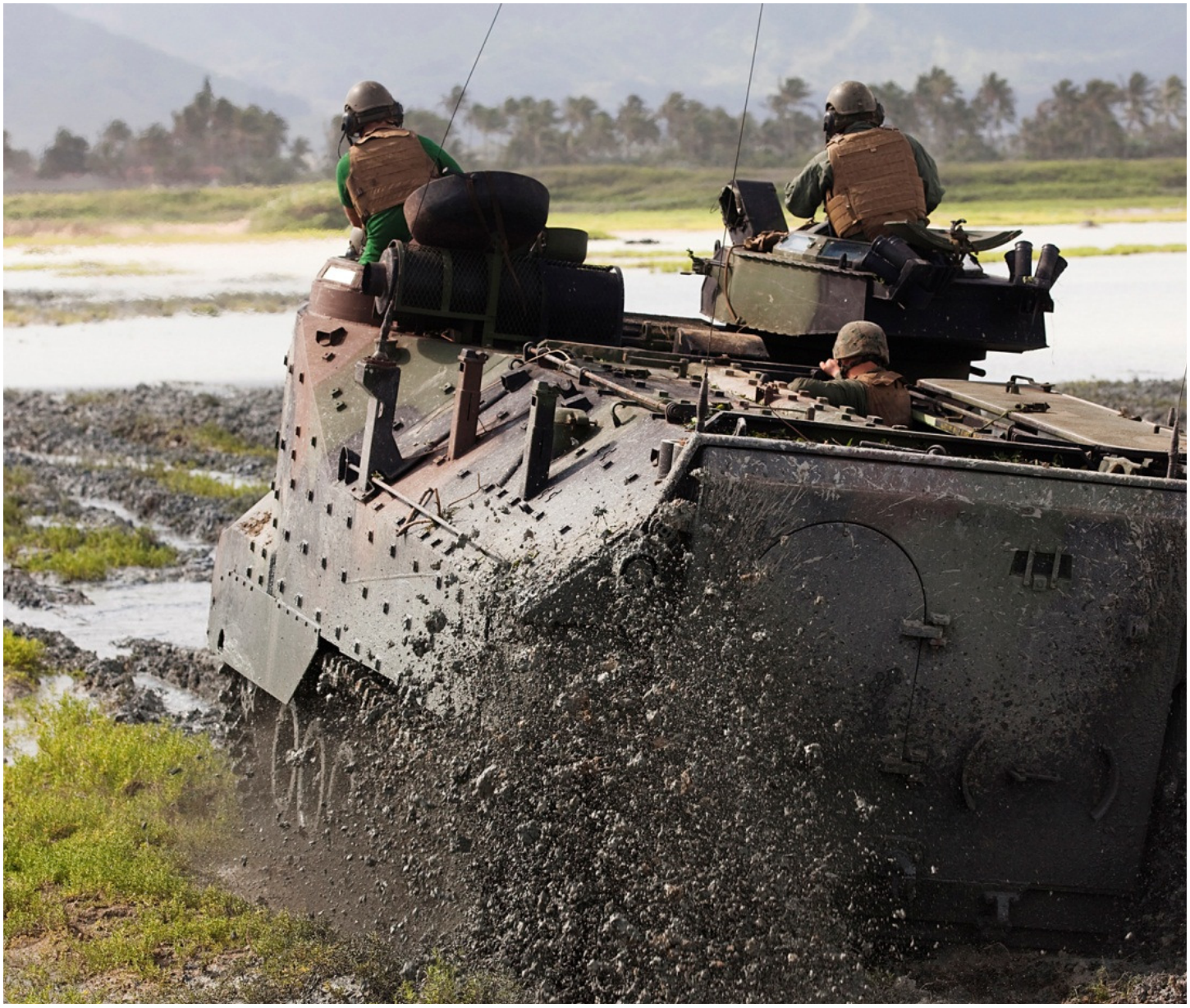
The basic functions of the SEP, PESHE, and NEPA/EO 12114 Compliance Schedule are as follows:

- The SEP documents the technical approach for the program and includes the integration of ESOH considerations into systems engineering using the MIL-STD-882E methodology.
- The PESHE documents data generated from ESOH analyses conducted as part of program execution.
- The NEPA/EO 12114 Compliance Schedule identifies all known or projected system-related activities that may trigger NEPA/EO 12114 requirements, including, but not limited to, testing, training, fielding, and support of the system.

The Office of the Secretary of Defense expects that the ESOH content in program documents will be consistent with the level of completeness and fidelity as other program documentation requirements. In accordance

with DoDI 5000.02, all acquisition category (ACAT) programs must meet ESOH policy requirements, including the basic information requirements for each document. This includes developmental, commercial off-the-shelf/Government off-the-shelf products, hardware and software components, block upgrades, major system modifications, and urgent operational needs.

A common-sense approach to ESOH planning should be applied when preparing the SEP, PESHE and NEPA/EO 12114 Compliance Schedule. The scope of ESOH planning, analysis, and documentation is dependent on many variables, such as the system type (e.g., aircraft, ship), ACAT level, complexity of the system, urgency of the need, and geographic considerations based on the concept of operations. Therefore, Program Managers should scale their ESOH efforts to meet requirements in a cost effective and value added manner.



1 SYSTEMS ENGINEERING PLAN (SEP)

1.1 PURPOSE OF THE SEP

The SEP helps Program Managers and Systems Engineers develop, communicate, and manage their overall systems engineering (SE) approach by providing a documented technical approach for the program. The SEP includes key technical risks, processes, resources, metrics, and completed and scheduled SE activities. The SEP is a "living" document that captures the current technical status and evolving SE implementation as part of the overall program management effort.

The SEP should guide all technical aspects of an acquisition program. Principal Deputy Under Secretary of Defense Memorandum, *Document Streamlining – Program Strategies and Systems Engineering Plan*, requires programs to use the SEP Outline to guide SEP preparation. The SEP Outline identifies the minimum expected content to be addressed in the SEP.

The SEP should contain the management plans for ESOH integration into the SE process. Integration of ESOH design considerations during SE in Milestone (MS) A is particularly important to ensure ESOH is addressed during the Technology Maturation and Risk Reduction (TMRR) phase. This is critical because of the significant amount of the design development, testing, and the Preliminary Design Review (PDR) that occurs during the TMRR phase.

1.2 ESOH IN THE SEP

The SEP should document the plans for integrating ESOH considerations into SE using the MIL-STD-882E methodology. ESOH planning information in the SEP should include:

- Identification of ESOH responsibilities, organizational structure, and User Representative;
- Required ESOH certifications (e.g., approvals, endorsements, releases);
- Contract language and requirements (e.g., Data Item Descriptions, Contract Data Requirements Lists [CDRL]);
- A description of the approach to minimize ESOH risks through design and other methods (e.g., logistics, training, hazard communication, compliance); and
- A description of the method for tracking hazards throughout the life cycle of the system.

Starting prior to MS-A, programs should begin to document ESOH hazard data in the government's Hazard Tracking System (HTS) and draft a NEPA/EO 12114 Compliance Schedule for TMRR phase. These may be included in the MS A SEP as attachments.

1.2.1 Location for ESOH in the SEP

In accordance with the SEP Outline, Table 4.6-1 Design Considerations (hereinafter referred to as the SEP Design Considerations Table) must include specific ESOH information, such as the ESOH contractual requirements. Table 1.1 describes the minimum ESOH planning information required in the SEP Design Considerations Table. As a rule of thumb, the program should keep

ESOH input in the SEP Design Considerations Table as concise as possible. ESOH details can be listed in the appropriate column of the SEP Design Considerations Table either as text or as an inserted file. For example, contractual requirements may be included in the table by inserting a file with the detailed language.

Table 1.2 is an example of a completed SEP Design Considerations Table.

Table 1.3 describes the preferred approach for including detailed ESOH information as appropriate throughout the SEP. This approach is to include content in all appropriate sections of the SEP and provide cross-references to those locations in the SEP Design Considerations Table to avoid text duplication.

Table 1.1 ESOH Content in SEP Design Considerations Table

SEP Design Considerations Table Column Heading	Expected ESOH Information (Entered in the Table or attached)
Cognizant PMO Org	Organizational structure depicting ESOH and the Program Office ESOH point of contact as well as the system User Representative as defined in MIL-STD-882E.
Certification	Required ESOH approvals, endorsements, reviews, releases, and the designated high and serious risk acceptance authorities' office symbols.
Documentation	PESHE and NEPA/EO 12114 Compliance Schedule at MS B and C. DUSD(I&E) recommends attaching the current HTS and the TMRR NEPA/EO 12114 Compliance Schedule at MS A.
Contractual Requirements (CDRL Number)	ESOH contractual language, ESOH CDRL items, and ESOH Defense Federal Acquisition Regulation Supplement (DFARS) clauses.
Description/Comments	Description of how design will minimize ESOH risks by summarizing how the program has integrated ESOH considerations into SE, including the method for tracking hazards and ESOH risks, and mitigation plans throughout the life cycle of the system (or refer to other locations in the SEP if they include this ESOH information).

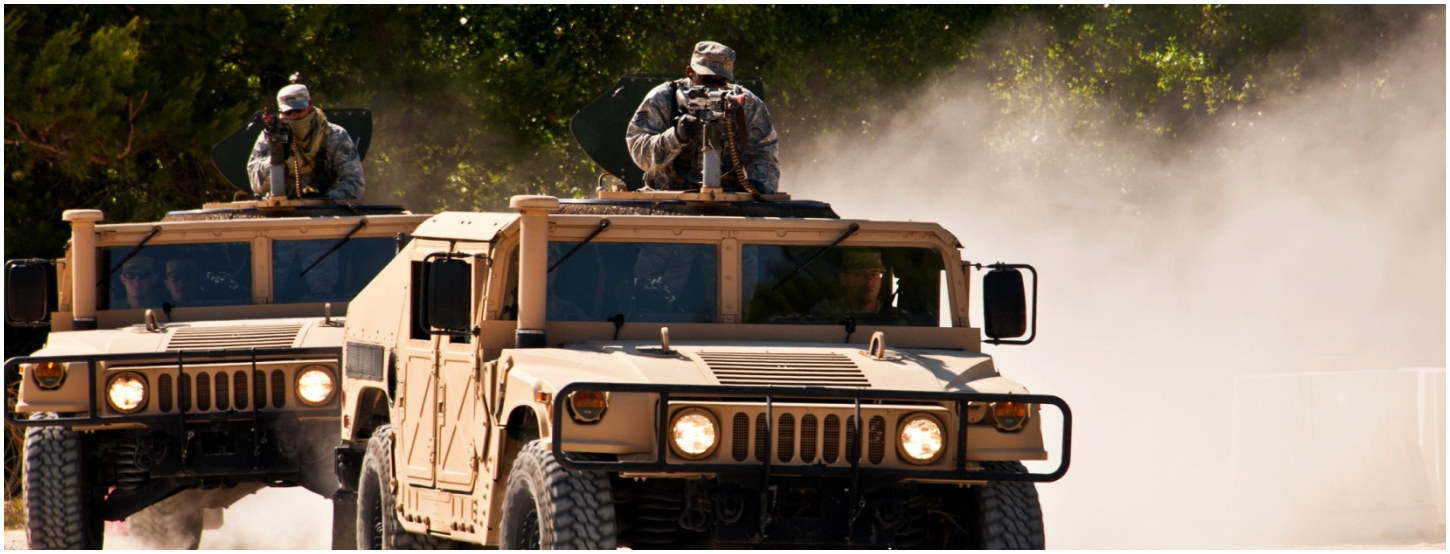


Table 1.2 Example ESOH Input to SEP Design Considerations Table

SEP Design Considerations Table Column Heading	Example ESOH Input
Cognizant PMO Org	• Lists Program's ESOH Lead name, organization, and contact information. • Engineering IPT includes the ESOH WGs.
Certification	• Laser Safety Board review and approval. • Software safety review by Joint Service Weapon and Laser System Safety Review Board.
Documentation (hot link)	• Current HTS and NEPA/EO 12114 Compliance Schedule for TMRR at MS A. • Attached files for both the PESHE and NEPA/EO 12114 Compliance Schedule at MS B and C.
Contractual Requirements (CDRL Number)	• MIL-STD-882E and the following Tasks: 101 Hazard Identification and Mitigation Effort Using the System Safety Methodology (CDRL Number, contractor format), 104 Support to Government Reviews and Audits (CDRL Number, contractor format), 205 System Hazard Analysis (CDRL Number, contractor format), Task 108 Hazardous Materials Management Plan (CDRL Number, contractor format). • Hazardous Materials Management Program Report (CDRL Number, contractor format). • DFARS clauses: Subpart 223.73 Minimizing the Use of Materials Containing Hexavalent Chromium, 223.803 Ozone Depleting Substances, 252.209-7010 Critical Safety Items, 252.223-7001, etc. • FAR clauses: Subpart 23.4 Use of Recovered Materials and Biobased Products, 23.6 Notice of Radioactive Material, 23.7 Contracting for Environmentally Preferable Products and Services, and 23.8 Ozone- Depleting Substances. Include text or summary of the ESOH requirements that were included in the Statement of Work. If the list is extensive, a file with the information may be attached.
Description/Comments	The designated ESOH Lead facilitates day-to-day integration of ESOH requirements. The ESOH Lead is responsible for assuring the <system> affords the Government the ability to achieve compliance with applicable ESOH laws, regulations, EOs, and Federal Acts throughout the system life cycle. The ESOH IPT, reporting to the Engineering IPT and chaired by the ESOH Lead, facilitates the execution of ESOH requirements. The ESOH Lead interacts with the Engineering, Supportability, T&E Working IPTs (WIPT), and others to ensure ESOH considerations are fully integrated into all aspects of the program. The ESOH IPT serves as the forum for identification of technical ESOH requirements (with traceability to Capability documents or statute or regulation) and management of identified ESOH risks. ESOH WG members should include both Government and contractor representatives, as well as users from each Service participating in the <Program>. Key ESOH responsibilities of the ESOH Lead and ESOH IPT include: • Monitoring execution of ESOH requirements imposed on the prime contractor. • Reviewing test procedures to define any needed ESOH requirements and/or mitigations.

SEP Design Considerations Table Column Heading	Example ESOH Input
	• Developing and maintaining HTS for the <program>. • Reviewing manuals and training requirements to assure safe installation, operation, support, and disposal of the <program>. • Ensuring ESOH risks are communicated to test, operations, developer/training, and maintenance communities. • Ensuring formal acceptance by the appropriate management levels obtained and documented prior to exposing people, equipment, or the environment to known system-related hazards. The Program has placed MIL-STD-882E on contract to define the ESOH risk management efforts. Initially, the prime contractor will identify and assess the hazards and their associated ESOH risks. This assessment includes coordination with the lead Systems Engineer, affected IPTs, and the ESOH IPT with respect to mitigation needs, as well as cost, schedule, and performance considerations. All ESOH risks will be tracked in a closed- loop HTS. Identified ESOH risks will be forwarded to the <program> Risk Management Manager for inclusion in the program risk reduction process as reflected in the <program> Risk Management Plan. The ESOH Lead is responsible for briefing and seeking management acceptance of identified ESOH risks, including coordination with the User representative(s) for formal concurrence when required. ESOH requirements will be incorporated into contractual documents and the <system> performance specification. NEPA/EO 12114 analyses and documentation will be monitored by the ESOH Lead and completed prior to applicable program events to avoid schedule delays. Hazardous materials (HAZMAT) management is governed by including the MIL-STD-882E Task 108 and the National Aerospace Standard 411 in the contract. To comply with these two Standards, and specifically, MIL-STD-882E, the program is targeting HAZMAT for elimination and/or reduction, such as the elimination of Class 1 and 2 Ozone Depleting Substances and compounds containing hexavalent chromium. The development of a consolidated HAZMAT List is planned as part of the <system> contract to cohesively identify the HAZMAT used on (delivered with) and for maintenance of the <system>. HAZMAT used during normal operation of <system> and potential hazardous waste streams have been identified as reflected in the PESHE document. HAZMAT usage will be communicated with users, maintainers, facility, installation, and depot personnel. If the list is extensive, a file with the information may be attached.

Table 1.3 Additional Locations for ESOH Information in the SEP

SEP Outline Section	ESOH Contribution[1]
Section 2.2: Technical Certifications Table 2.2-1: Certification Requirements	Identify any ESOH-related certifications, approvals, or releases required for the system prior to fielding such as: • Airworthiness. • Navy Weapon System Explosives Safety Review Board (WSESRB). • Insensitive Munitions/Hazard Classification (IM/ HC).
Section 3.3: Engineering and Integration Risk Management	• Include the program's ESOH risk management approach, or reference the PESHE, which should document this information.
Section 3.4: Technical Organization Paragraph 3.4.1: Government Program Office Organization Figure 3.4.1-1: Program Office Organization	• Include ESOH representation in Integrated Product Teams (IPTs), and ESOH-related IPTs and Working Groups (WGs).
Section 3.4.2: Program Office Technical Staffing Levels	• Summarize the program office's ESOH technical staffing plan. Include process and tools used to determine required technical staffing, and potential risks if staffing levels are not met.
Section 3.4.4: Engineering Team Organization and Staffing Figure 3.4.4-1: IPT/WG Team Hierarchy Table 3.4.4-2: IPT Team Details	• Identify all Government AND contractor (when available) ESOH specific IPTs and their associated WGs. • Identify Government AND contractor (when available) ESOH specific IPTs and ESOH participation in other IPTs.
Section 3.6: Technical Performance Measures (TPM) and Metrics Table 3.6-2: TPMs	• Identify ESOH-related Key Performance Parameters, Key System Attributes, Additional Performance Attributes, and Other System Attributes.
Section 4.4: Technical Reviews Table 4.4-1: Technical Review Details	• Identify ESOH participation for each technical review, to include ESOH-related questions, as appropriate, and procedures for review of ESOH risks.
Section 4.7: Engineering Tools	• Identify ESOH tools, e.g., HTS.

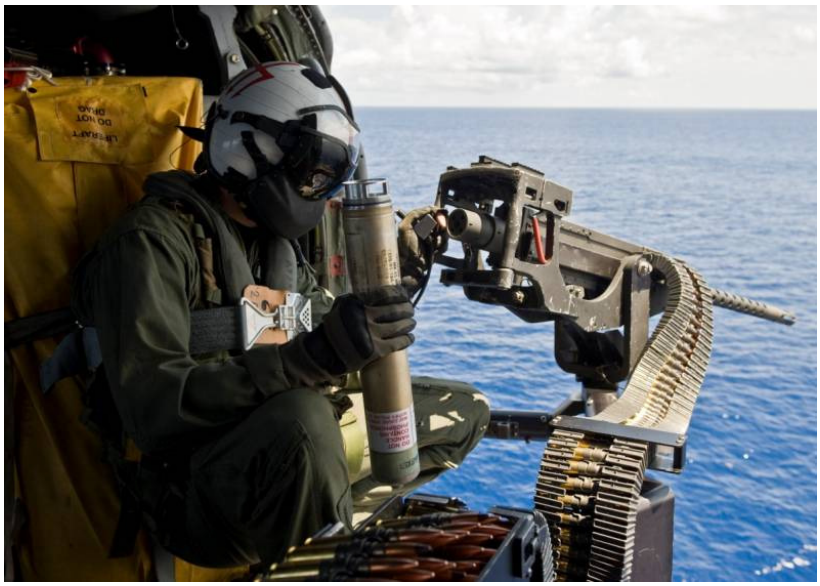
1. The ESOH Contributions Column in Table 1.3 contains examples of information that could be included in the SEP; it is not an all- inclusive list.


U.S. NAVY
SEABEE EQUIPMENT CONTAINER
U.S. NAVY
SEABEE EQUIPMENT CONTAINER
U.S. NAVY
SEABEE EQUIPMENT CONTAINER

2 PROGRAMMATIC ESOH EVALUATION (PESHE)

2.1 PURPOSE OF THE PESHE

ESOH analyses are integral to systems engineering (SE) throughout the acquisition life cycle. Specifically, programs integrate ESOH design considerations into the SE effort; conduct ESOH analyses to identify, eliminate, or mitigate potential risks to the system, personnel, and environment. In accordance with DoDI 5000.02, programs must ensure compliance with statutory requirements and obtain formal ESOH risk acceptance by the required management level prior to exposing people, equipment, or the environment to known hazards. ESOH analyses should inform design decisions that can result in a safe, suitable, supportable, and sustainable capability able to operate world-wide.



The PESHE documents the results of ESOH data analyses produced from executing the ESOH planning described in the Systems Engineering Plan (SEP).

In accordance with DoDI 5000.02, programs must provide the PESHE at Milestone (MS) B, MS C, and Full Rate Production Decision Review. The minimum data required in the PESHE include:

- ESOH Risk Matrices (for hardware and software) used by the program with definitions for severity categories, probability levels, risk levels, risk acceptance authorities, and User Representative concurrence authorities. MIL-STD-882E defines the term User Representative. Each Service designates the appropriate User Representative for a given system.
- Government-owned HTS data or by providing an electronic copy of the current data from the HTS.
- Hazardous materials management data (if not included as part of the hazard data), including data on hazardous wastes and pollutants associated with the system.
- Environmental impact information, not included in the hazard data or hazardous materials management data, but needed to support installation and range analyses.

The Hazard Tracking System (HTS) is continuously updated as ESOH data is produced throughout the life of a system, from Materiel Solution Analysis until disposal. The HTS data, or the HTS itself, is included in the PESHE when provided for review at MS B and C. The HTS may also be included in the SEP at MS A.

Per DoDI 5000.02, all programs must have a PESHE regardless of the designated acquisition category (ACAT) level. The instruction also requires a PESHE for all defined program types (e.g., Major Defense Acquisition Programs, Major Automated Information System). The PESHE is required no matter the number of ESOH risks that are anticipated or known for the system.

Programs with software-controlled or software intensive systems should assess the software contribution to ESOH risk in accordance with MIL-STD-882E to achieve a reasonable level of assurance that software will execute within the system context with an acceptable level of risk. Software intensive programs should also specify whether hardware or infrastructure is required and analyze procurement, installation, and disposal requirements associated with that hardware or infrastructure for potential ESOH risks. Examples include installation of fiber optic cables, radio antennas, other communication devices, or new or modified support facilities or infrastructure. These examples would include ESOH risks and require NEPA/Executive Order 12114 documentation, and demilitarization and disposal planning.

For a follow-on ACAT to an existing program (e.g., block upgrades, major system modifications), programs shall identify new information (e.g., hazards that are unique to the follow-on program) and should integrate this new information into the overall system ESOH technical information.

Programs that determine there are no ESOH risks associated with the system over its life cycle may document this finding in the PESHE. The justification should include a description of the review, analyses, and results that support this determination. The PESHE should demonstrate that the program executed due diligence in reaching the conclusion that there are no ESOH risks associated with the design, development, testing, fielding, operation, maintenance, disposal of the system(s). The PESHE should include evidence that the ESOH considerations identified in DoDI 5000.02 were addressed.

2.2 PESHE Outline

Below is the annotated PESHE outline recommended for acquisition programs. The outline is based on best practices and lessons learned from DUSD (I&E) and Component reviews of PESHEs.

PESHE Outline

Title page

Executive Summary

Table of Contents

ESOH Compliance and Design Requirements

ESOH Risk Assessment Matrices

ESOH Hazard Tracking Data

Hazardous Materials Management Data

Other Environmental Impact Information

Appendix

2.2.1 Title Page

2.2.2 Executive Summary

The Executive Summary provides high-level visibility to key ESOH areas of concern that may require management attention.

This section of the PESHE should identify how many initial, current, and target High, Serious, Medium, or Low risks the program has identified. It should also specify the risk acceptance authority for each risk level. In addition, the Executive Summary should contain a summary of key ESOH issues highlighted for leadership awareness.

Examples of potential issues include:

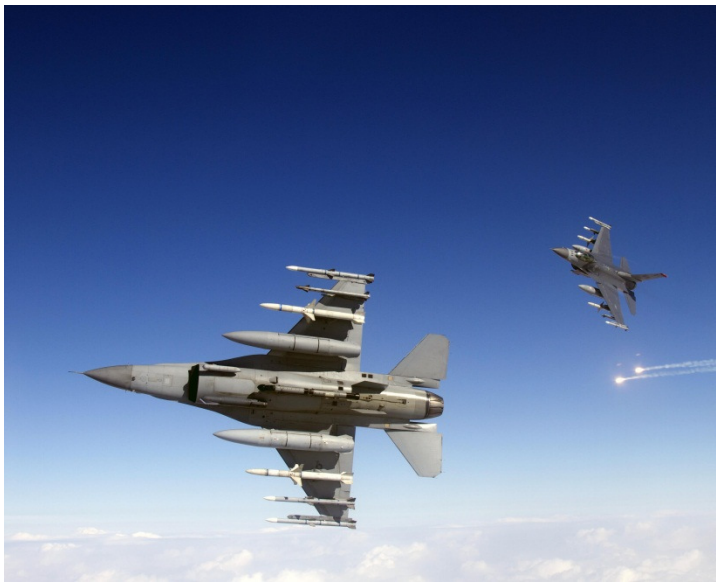
- ESOH compliance issues at receiving installations or areas of operation that have the potential to impact fielding or planned operational profile, and what the program has done or will do to mitigate the risks.
- Funding for ESOH risk mitigations.
- Concerns or issues related to HAZMAT, hazardous waste, and pollution emissions associated with the system, and plans for their minimization and/or safe disposal.

2.2.3 Table of Contents

2.2.4 ESOH Compliance and Design Requirements

2.2.4.1 JCIDS ESOH Capability Requirements

This section should include the ESOH-related Key Performance Parameters (KPPs), Key System Attributes (KSAs), Additional Performance Attributes, and Other System Attributes identified in the program's capability documents. Alternatively, referencing the source document, page, and paragraph number is acceptable.



2.2.4.2 Derived ESOH Requirements

This section should document ESOH design requirements identified in the analysis of system capability needs and applicable ESOH compliance requirements. This section should also document how the Program Office intends to perform periodic compliance reviews of regulatory requirements (e.g., Federal, State, local ESOH regulations, treaties, DoD/Component instructions and standards) to determine applicable compliance requirements over the life cycle of the system. The PESHE should document how the Program is conducting these periodic reviews. This section should then document the ESOH compliance findings from the compliance reviews and mitigation actions being taken by the program, as well as any planned future actions or initiatives. This section should also highlight actions taken to comply with DoD Green Procurement Program requirements to purchase or use environmentally friendly products in acquisition transactions or activities where possible. As the program matures, this section should identify those system ESOH requirements that have also been documented in the Program's overall Requirements Tracking System.

2.2.5 Risk Assessment Matrices

2.2.5.1 ESOH Risk Assessment Matrix

This section contains the program's ESOH Risk Assessment Matrix (or matrices). The matrix should include applicable definitions for severity categories, probability levels, risk levels, risk acceptance, and User Representative concurrence authorities. In accordance with MIL-STD-882E, the definitions for severity categories, probability levels, and the risk levels depicted in the risk assessment matrix contained in Section 4.3 of MIL-STD-882E must be used unless tailored alternative definitions and/or a tailored matrix are formally approved in accordance with DoD Component authority.

When approved tailored alternative definitions and/or matrixes are used, the PESHE should include documentation from the approval authority and identify how the tailored alternatives were derived from those in Section 4.3 of MIL-STD-882E. The PESHE should explain how the risk levels compare to the risk levels of MIL-STD-882E and clearly show that risk acceptance authorities and User Representative concurrence will correlate with MIL-STD-882E and be in accordance with DoDI 5000.02.

The following tables and figures are from Section 4.3 of MIL-STD-882E. They are included as examples of the information expected in the PESHE. Note that if the program is using the tables/matrix from MIL-STD-882E, the program may opt to merely reference them in the PESHE.

The information is Table 2.1 is used to determine the appropriate severity category for an identified hazard. A given hazard may have the potential to affect one or all of the three areas covered – death or injury, environmental impact, or monetary loss.

Table 2.1 Severity Categories

Description	Severity Category	Mishap Result Criteria
Catastrophic	1	Could result in one or more of the following: death, permanent total disability, irreversible significant environmental impact, or monetary loss equal to or exceeding $10M.
Critical	2	Could result in one or more of the following: permanent partial disability, injuries or occupational illness that may result in hospitalization of at least three personnel, reversible significant environmental impact, or monetary loss equal to or exceeding $1M but less than $10M.
Marginal	3	Could result in one or more of the following: injury or occupational illness resulting in one or more lost work day(s), reversible moderate environmental impact, or monetary loss equal to or exceeding $100K but less than $1M.
Negligible	4	Could result in one or more of the following: injury or occupational illness not resulting in a lost work day, minimal environmental impact, or monetary loss less than $100K.

The information in Table 2.2 is used to determine the appropriate probability level for an identified hazard and the likelihood of occurrence of a mishap.

Table 2.2 Probability Levels

Description	Level	Specific Individual Item	Fleet or Inventory
Frequent	A	Likely to occur often in the life of an item.	Continuously experienced.
Probable	B	Will occur several times in the life of an item.	Will occur frequently.
Occasional	C	Likely to occur sometime in the life of an item.	Will occur several times.
Remote	D	Unlikely, but possible to occur in the life of an item.	Unlikely, but can reasonably be expected to occur.
Improbable	E	So unlikely, it can be assumed occurrence may not be experienced in the life of an item.	Unlikely to occur, but possible.
Eliminated	F	Incapable of occurrence. This level is used when potential hazards are identified and later eliminated.	Incapable of occurrence. This level is used when potential hazards are identified and later eliminated.

Table 2.3 identifies the risk assessment matrix used to assess the ESOH risk based on the probability and severity assigned using Tables 2.1 and 2.2. The combination of one severity category and one probability level is expressed as a risk assessment code (RAC). The risk assessment matrix is used to determine the RAC and identify the associated ESOH risk level of High, Serious, Medium or Low for each RAC.

Table 2.3 Risk Assessment Matrix

PROBABILITY	SEVERITY: Catastrophic (1)	Critical (2)	Marginal (3)	Negligible (4)
Frequent (A)	High	High	Serious	Medium
Probable (B)	High	High	Serious	Medium
Occasional (C)	High	Serious	Medium	Low
Remote (D)	Serious	Medium	Medium	Low
Improbable (E)	Medium	Medium	Medium	Low
Eliminated (F)	Eliminated			

Programmatic ESOH Evaluation (PESHE)

DoDI 5000.02 requires the Program Manager (PM) to document that ESOH risks have been accepted by the Component Acquisition Executive for High risks; the Program Executive Office level for Serious risks; and the PM for Medium and Low risks. DoDI 5000.02 further requires formal concurrence from the User Representative prior to all High and Serious risk acceptance decisions. MIL-STD-882E requires User Coordination for Medium and Low risks. Table 2.4 summarizes these requirements.

Table 2.4 ESOH Risk Acceptance and User Concurrence Authorities

Risk Level	Acceptance Authority	User Representative*
High	Component Acquisition Executive	Formal Concurrence Required (identify peer level equivalent)
Serious	Program Executive Office level	Formal Concurrence Required (identify peer level equivalent)
Medium	Program Manager	Coordination Required
Low	Program Manager	Coordination Required

* The User Representative is defined in MIL-STD-882E and is designated per Component policy.

In accordance with DoDI 5000.02, formal risk acceptances must occur prior to exposing people, equipment, or the environment to known system- related hazards. This applies to specific events, such as developmental and operational testing and fielding of prototypes to support urgent combat needs. In these cases, the risks to be accepted are for the hazards as configured in the system at that time and for the duration of the event. Formal risk acceptances also occur prior to fielding systems. The result is that a single hazard may require multiple formal acceptances as the system design evolves and events occur. The PESHE should briefly explain the process used by the program for ESOH risk acceptance and User Representative concurrence.

DoDI 5000.02 requires reporting the status of all High and Serious risks at acquisition program reviews and fielding decisions. For milestone reviews, the required risk reporting can be accomplished via the PESHE. For all other program reviews, programs should use the template provided in Table 2.5 for reporting High and Serious risk status; the template includes only a few examples of the hazard data.

Table 2.5 High and Serious ESOH Risk Reporting Template

Program Office Hazard ID	Hazard Title	Initial RAC & Level	Hazard Description with Potential Mishap	Current RAC & Level	Mitigation Measures	Mitigation Status – as of Date	Target RAC & Level
46	Fire	1C High	Uncontrolled fire causes personnel death, loss of system or environmental damage.	1C High	1. Incorporate automatic fire protection. 2. Change materials to be more fire resistant and environmentally friendly.	1. Pending–Dec 092. Pending–Dec 09	1E Medium
154	Toxic Materials Released into Environment	1C High	In the event of an uncontrolled fire, toxic material is released into the environment, leading to irreversible environmental damage.	1C High	1. Incorporate automatic fire2. Change material to be more fire resistant and environmentally friendly.	1. Pending–Dec 092. Pending–Dec 09	1E Medium
11	Inadvertent Launch	1C High	Inadvertent launch or release of ordnance could result in personnel death or system loss.	1D Serious	1. Incorporate redundant interlocks to preclude inadvertent launch.2. Incorporate warnings / cautions in Technical Manuals.3. Validate design features via testing.	1. Complete – Aug 052. Pending–Oct 093. Pending–Jan 10	1E Medium
215	Software Failure Leads to Ballistic Error	1D Serious	Inaccurate targeting of ordnance leads to impacting friendly forces.	1D Serious	1. Perform software verification and validation to verify safety critical software meets requirements.	1. Pending–TBD (Need Funding)	1D Serious

Additionally, when an ESOH risk presents a risk to program performance, schedule, or cost, the risk should be incorporated into the program's overall risk management process to ensure it is given appropriate attention by program management. It is vital to preserve the integrity of the ESOH risk assessment – the risk level should not be inadvertently reduced when mapping ESOH risk into the overall risk management process. In other words, a High ESOH risk should be shown as a High risk on the Program's overall risk chart. A Program Office should manage a High ESOH risk with the same degree of rigor as it manages a high cost, schedule, or performance risk.

2.2.5.2 Software System Safety Assessment Tables

In accordance with MIL-STD-882E, programs with software-controlled or software intensive systems and/or subsystems must assess the software contribution to ESOH risk. Section 4.4 of MIL-STD-882E defines software system safety requirements and Appendix B of MIL-STD-882E provides additional guidance for the software system safety effort. Legacy Program Offices conducting ESOH management using the methodology in previous versions of MIL-STD-882 are required to demonstrate and document in the PESHE a reasonable level of assurance that the system's software will execute with an acceptable level of ESOH risk.

In accordance with MIL-STD-882E, the program must use the software assessment tables from Section 4.4 of MIL-STD-882E unless tailored alternative tables are formally approved in accordance with DoD Component policy. The software assessment tables include software control categories; software safety criticality matrix with level of rigor (LOR) tasks; and relationships between software criticality indexes, risk level, level of rigor, and risk.

It is important that software be analyzed within the context of the system it functions in. A successful software system safety engineering activity is based on a hazard analysis process, a safety-significant software development process, and LOR tasks. Emphasis is placed on the context of the "system" and how software contributes to or mitigates failures and mishaps. The software system safety effort should be performed in conjunction with the system safety, software development, software test, configuration management, and Independent Verification and Validation team(s).

2.2.6 ESOH Hazard Tracking Data

The PESHE documents ESOH analyses results and risk assessment for each identified hazard in a closed-loop HTS. This section must include the following minimum data required to be tracked for each hazard in accordance with MIL-STD-882E:

- Identified hazard,
- Associated mishaps,
- Initial risk assessment,
- Target risk assessment,
- Event(s) risk assessment,
- Identified Mitigation measure(s),
- Selected Mitigation measures,
- Hazard Status (e.g., fully mitigated, partially mitigated, eliminated),
- Verification of risk reductions, and
- Risk acceptance(s).

Providing an electronic copy of the current data from the government's HTS in the PESHE would satisfy this requirement.

Table 2.6 contains the required data elements in Section 4 of MIL-STD-882E presented in a standard format used by many programs. The example environmental hazard (Hazard ID# 001) is associated with a notional maritime vessel. The safety hazard (Hazard ID# 002) and occupational health hazard (Hazard ID #003) are associated with a notional gun system.

Table 2.6 Notional ESOH Hazard Tracking Data

Hazard ID #	Hazard Description	Potential Mishap	Initial RAC	Target RAC	Event(s) RAC	Current RAC
001	Petroleum, Oil, & Lubricants (POLs) Released into the Environment During Bilge Pump Operations **<Environmental Hazard Example>**	Environmental Damage - Hazardous Materials (HAZMAT) Released into Environment	2B	2E	2D	2C
Mitigation Measures & Status A. Incorporate petroleum, oil, & lubricants (POL) sensors and software logic for bilge system pump operation to cease when POLs are present (Engineering Change Request (ECR) Number)). B. Incorporate high water sensors and only operate bilge system if excessive water is present (ECR Number). C. During pre-operational inspection, determine if POLs are present in bilge. If POLs are present, manually pump bilge dry and collect POLs in HAZMAT container for proper disposal ashore (Operation and Maintenance Technical Manual, Pre-Op Checklist Number). D. Shut off bilge system during test operation. (T&E Test Plan XYZ).						
Hazard Status/Notes As of <date>, the hazard has been entered into the HTS as Hazard ID# 001 and is awaiting ESOH IPT review. As of <date>, reviewed by ESOH IPT and the ESOH IPT identified the initial risk as Serious and recommends selecting Mitigation Measures A, B, and C and further investigate Mitigation Measure D with the Test Director to ensure this is a viable option for test purposes. As of <date> and based on review by the ESOH IPT, the current RAC has been reduced from 2B (Serious) to 2C (Medium). Mitigation Measure C has been selected and verified in the Operation and Maintenance Technical Manual, Pre-Op Checklist Number. As of <date>, the ESOH IPT coordinated with the Systems Engineering Lead to implement Mitigation Measures A and B. ECR Number has been developed to implement the hardware and software design changes for these Mitigation Measures. The planned implementation date is <date>. A Target RAC of 2E is anticipated once ECR Number has been implemented. As of <date>, the program plans to perform Test Event XYZ. The ESOH IPT coordinated with the Test Director and determined that Mitigation Measure D can be used and included the manual bilge shutoff procedures in T&E Test Plan XYZ. The Event RAC has been reduced to 2D (Medium).						
Risk Acceptance(s) Date: <Insert Date> Event: Operator conducted test at ABC test facility (T&E Test Plan XYZ) Configuration: Nominal Risk Accepted: 3D (Medium) Acceptance Authority: PM, <name>						

User Coordination: <name>

Documentation: <Insert URL to signed risk acceptance form>

Note: Deployment risk acceptance will be obtained upon implementation and verification of ECR Number.

Hazard ID #	Hazard Description	Potential Mishap	Initial RAC	Target RAC	Event(s) RAC	Current RAC
002	Invalid Targeting Data Entered into Fire Control Computer Due to Operator Error **<Safety Hazard Example>**	Personnel death or injury due to Inadvertent Engagement of a Friendly/Non-Hostile	1B	1E	1D	1D

Mitigation Measures & Status

A. Design Fire Control Computer to default to automatic fire control input and only allow manual operator input in casualty mode.

B. Update Fire Control Computer Software by adding a "Confirm" prompt to require the operator to confirm their target data (CR Number, STR Number).

C. Provide visual indication of projected target data impact location prior to allowing FIRE command (STR Number).

D. Update Operator Technical Manual by adding warnings related to invalid target data and potential outcomes (Tech Manual, Para A.B.C. and Para X.Y.Z).

E. Develop TTPs to require coordination of target data between operator and commander (Training Material Ref: XYZ).

F. Provide operator training related to obtaining, verifying, and entering targeting data (Training Material Ref: XYZ).

Hazard Status/Notes

As of <date>, the hazard has been entered into the HTS as Hazard ID# 002 and is awaiting ESOH IPT review.

As of <date>, the ESOH IPT identified the initial risk as High and recommends selecting Mitigation Measures B, C, D, E, and F, and further investigate Mitigation Measure A with end-user operator input.

As of <date> and based on review by the ESOH IPT, the current RAC has been reduced from 1B (High) to 1D (Medium). Mitigation Measure A was not selected since the end user disagreed with the design mitigation and preferred manual control. Mitigation Measure B was implemented in SW Build Version Number on <date> via CR Number. The related STR Number has been closed. Mitigation Measure D has been verified and included in the Tech Manual, Para A.B.C. and Para X.Y.Z. Mitigation Measures E and F have been coordinated with the Training Lead on <date> and are included in Training Material Ref: XYZ. The ESOH IPT has determined that the Current RAC and Event RAC are 1D. A Target RAC of 1E is anticipated once Mitigation Measure C is also implemented in via a software update. This update is being tracked in STR Number.

As of <date>, the risk for Test Event "Operator conducted test at ABC test facility" has been accepted at the 1D (Serious) risk level after obtaining user concurrence. The ESOH IPT is awaiting inclusion of Mitigation Measure C (STR Number) prior to risk reduction.

Risk Acceptance(s)

Date: <Insert Date>

Event: Operator conducted test at ABC test facility (T&E Test Plan XYZ)

Configuration: Nominal

Risk Accepted: 1D (Serious)

Acceptance Authority: PEO, <Name>

User Concurrence Authority: XYZ Division, <Name>

Documentation: <Insert URL to signed risk acceptance form>

Note: Deployment risk acceptance will be obtained upon implementation and verification of STR Number.

Hazard ID #	Hazard Description	Potential Mishap	Initial RAC	Target RAC	Event(s) RAC	Current RAC
003	Excessive Steady State Noise Exposure Due to Close Proximity of Crew to Loud System Noise Sources **<Occupational Health Hazard Example>**	Personnel injury (permanent or temporary hearing loss)	2B	2E	2D	2C

Mitigation Measures & Status

A. Conduct noise surveys and testing to determine excessive noise contributors at the subsystem level (Safety Document XYZ).

B. Increase distances between crew and/or noise source locations.

C. Apply noise damping or absorption materials to noise sources (ECR Number).

D. Apply active noise cancellation devices.

E. Provide crew with noise reduction Personal Protective Equipment (PPE) (Safety Document XYZ).

F. Implement a Noise and Hearing Conservation Program. (Safety Document XYZ)

Hazard Status/Notes

As of <date>, the hazard has been entered into the HTS as Hazard ID# 003 and is awaiting System ESOH IPT review.

As of <date>, the ESOH IPT identified the initial risk as High and recommends selecting Mitigation Measures A, E, and F, and to further investigate costs of Mitigation Measure D. For test events, Mitigation Measure F will be tailored to ensure the test events do not expose personnel to noise for extended durations.

As of <date> and based on review by the ESOH IPT, the current RAC has been reduced from 2B (High) to 2C (Serious). Mitigation Measures A, E, and F have been selected and verified via Safety Document XYZ. Mitigation Measure B is not a viable option due to space constraints to relocate noise sources. Mitigation Measure C is in process and will be implemented via ECR Number on <date>. The ESOH IPT anticipates the incorporation of ECR Number will justify the Target RAC to 2E. Mitigation Measure D is cost prohibitive and was not selected.

As of <date>, the risk for Test Event "Operator conducted test at ABC test facility" has been accepted at the 2D (Medium) risk level after obtaining user coordination.

As of <date>, the current risk for Deployment has been accepted at the 2C (Serious) risk level after obtaining user concurrence.

Programmatic ESOH Evaluation (PESHE)

Risk Acceptance(s)

Date: <Insert Date>

Event: Operator conducted test at ABC test facility (T&E Test Plan XYZ)

Configuration: Nominal

Risk Accepted: 2D (Medium)

Acceptance Authority: PM, <Name>

User Coordination: <name>

Documentation: <Insert URL to signed risk acceptance form>

Date: <Insert Date>

Event: Deployment

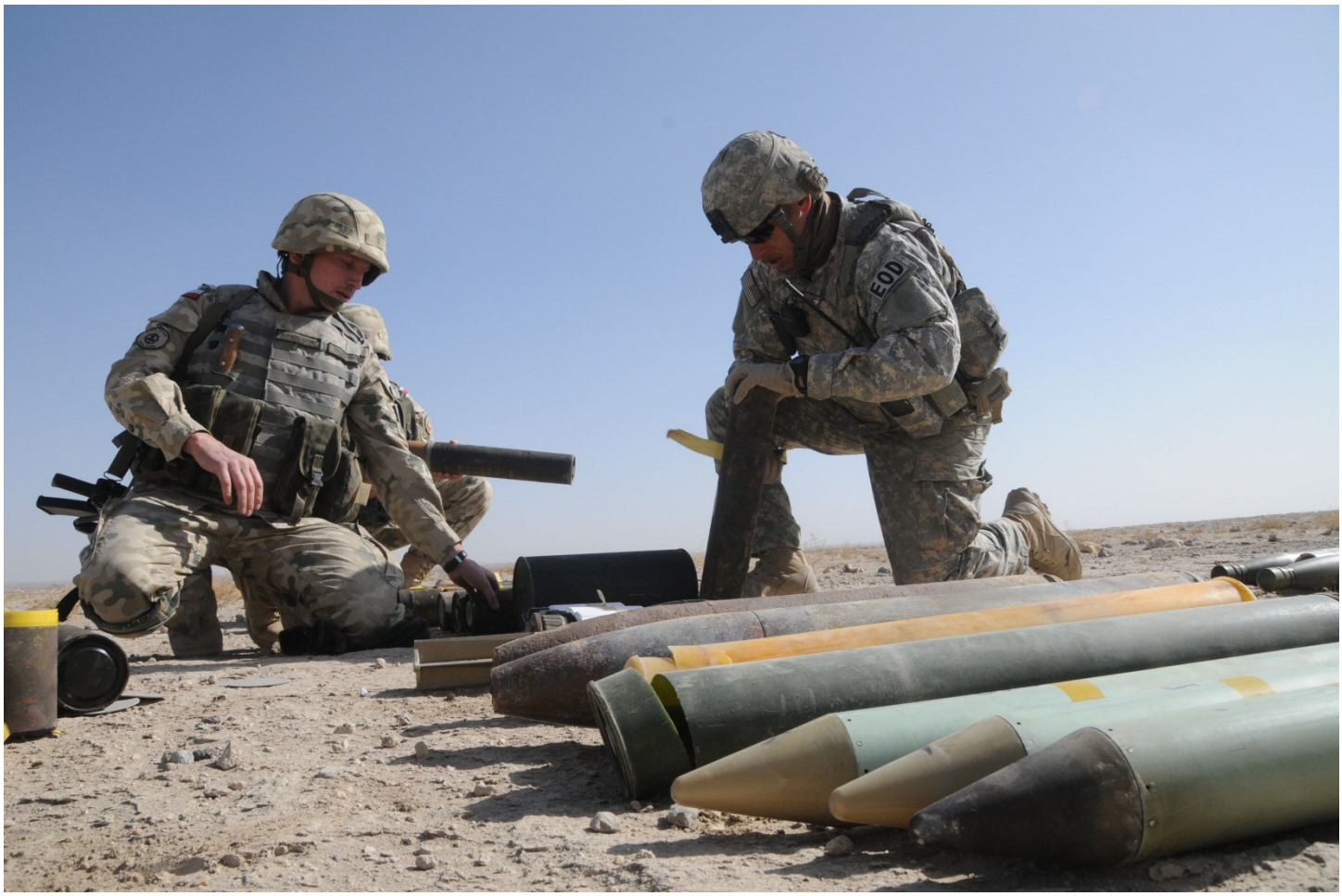
Configuration: Nominal Risk

Accepted: 2C (Serious)

Acceptance Authority: PEO, <Name>

User Concurrence Authority: XYZ Division, <Name>

Documentation: <Insert URL to signed risk acceptance form>



Programs developing systems that are more complex may opt to include additional data in the HTS. For instance, MIL-STD-882E, Task 106, Hazard Tracking System, identifies the following data to be included in the program's HTS:

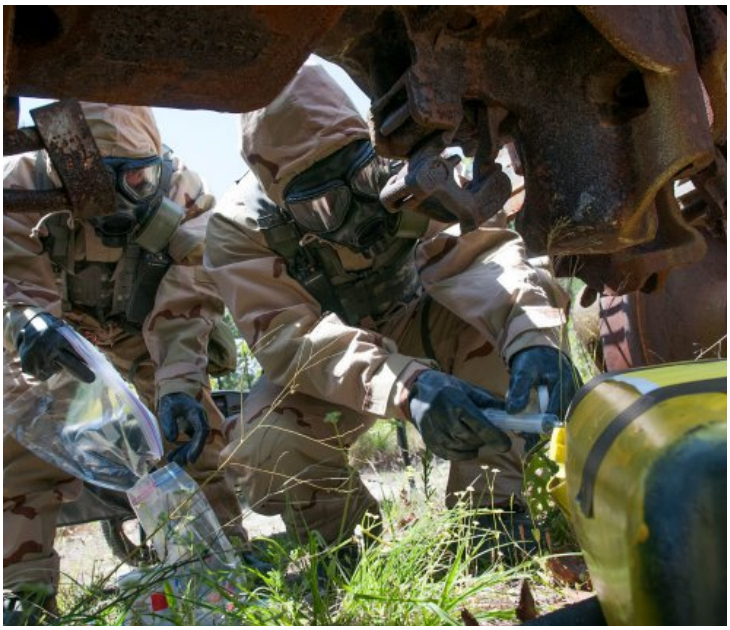
- Identified hazard,
- Associated mishaps,
- Initial RAC,
- Target RAC,
- Event RAC,
- Identified risk mitigation measures,
- Selected risk mitigation measures,
- Hazard status,
- Verification of risk reduction and validation method,
- Record of risk acceptance(s),

Data identical to that required by MIL-STD-882E, Section 4

- System,
- Subsystem (if applicable),
- Applicability (version specific hardware designs or software releases),
- Requirements references,
- System mode,
- Causal factor,
- Effects,
- Action person(s) and organizational element,
- Hazard management log, and
- HAZMAT data elements as specified by the Government in the contract.

2.2.7 Hazardous Materials Management Data

The PESHE documents risk and usage data of HAZMAT embedded in the system and used during operation and support. The PESHE should also document hazardous wastes and pollutants (discharges/emissions/noise) generated during operation, support, and disposal of the system/subsystem. The PESHE also includes plans to minimize HAZMAT, hazardous wastes, and pollutants associated with the system, as well as plans for the safe disposal (and/or treatment) of hazardous wastes and pollutants.



The ESOH hazard and risk data is normally documented in the program's overall HTS. This data would include risks related to HAZMAT, hazardous wastes, and pollutants associated with the system. The specific additional data required to be tracked for HAZMAT, hazardous wastes, and pollutants should also be tracked in the HTS, but some programs opt to use a separate HAZMAT database to track this information. In either case, it is acceptable to include an electronic copy of the required data from one or both databases with the PESHE in lieu of transferring the HAZMAT information into the PESHE.

Table 2.7 lists the required risk data for HAZMAT, hazardous waste, and pollutant hazards as for any other ESOH hazard.

Table 2.7 ESOH Hazard Tracking Data for HAZMAT

Minimum Data from HTS
Identified hazards
Associated mishaps (potential and actual)
Risk assessments (initial, target(s), and event(s))
Identified risk mitigation measures
Selected mitigation measures
Hazard status
Verification of risk reductions and validation method
Risk acceptances (at the appropriate level)

2.2.7.1 HAZMAT Data

In addition to the required ESOH risk data, DoDI 5000.02 requires that the PESHE include the following minimum additional data for each hazardous material, hazardous waste, and pollutant associated with the system:

- HAZMAT, hazardous waste or pollutant name, and
- Plans for their minimization and/or safe disposal.

In addition, for each HAZMAT, hazardous waste, and pollutant, the PESHE should include the specific use(s), location(s), and quantities.

If the program is using MIL-STD-882E Task 108, Hazardous Materials Management Plan, the following nine data elements are required:

- HAZMAT item or substance name;
- HAZMAT Category (prohibited, restricted, or tracked);
- Special Material Content Code as designated in DoD 4100.39-M, Volume 10;
- Location of HAZMAT within the system;
- Quantity of HAZMAT within the system with traceability, as applicable, to version specific hardware designs;
- Application, process, or activity whereby quantities of HAZMAT are embedded in the system, or used during operations and support of the system;
- Reasonably anticipated HAZMAT (whether categorized or not) generated during the system's life cycle (e.g., installation, Government test and evaluation, normal use, and maintenance or repair of the system);

- Reasonably anticipated HAZMAT (whether categorized or not) generated during mishap occurrence; and
- Special HAZMAT control, training, handling measures, and Personal Protective Equipment (PPE) needed, including provision of required Material Safety Data Sheets.

Table 2.8 depicts a representative example of the MIL-STD-882E Task 108 tracking elements.

Table 2.8 Example of HAZMAT Data Elements

HAZMAT Name	Acetone
HAZMAT Category	Tracked
Special Material Content Code	L
Location	N/A - used during maintenance activities
Quantity	1 quart per month for routine base-level maintenance; 2 gallons per routine Programmed Depot Maintenance cycle (once every 5 years)
Application/process using HAZMAT	Degreasing during maintenance produces vapors that could be inhaled, and result in skin/eye irritation
HAZMAT/Waste generated by activity	Respirator cartridges, waste rags during maintenance activities, and expended cleaning chemicals will be disposed of according to specific procedures
HAZMAT/Waste generated during a mishap	N/A
Special controls/training	Designated area with specific ventilation rate/PPE/all maintenance personnel trained on hazards

2.2.7.2 Pollutants

In addition to the required risk data and minimum HAZMAT data identified above, DoDI 5000.02 requires the PESHE to identify specific pollutants associated with system operations and maintenance activities, and document plans for minimization. For each pollutant, the PESHE should include the elements below:

- Sources of emission for each pollutant;
- Quantity and magnitude or rate of pollution generated during normal operation and maintenance as specified by the program office; and
- Special emission control, training, handling measures, and PPE needed.

2.2.7.3 Approvals

Every system needs to be evaluated against a Component's policies to identify which HAZMAT will need to be formally authorized. This section of the PESHE should address the approvals that authorize the use of HAZMAT otherwise prohibited. For instance, a Senior Acquisition Official approval is required for contractual requirements that can only be met by the use of a Class I ozone depleting substance. The PESHE should include copies of approvals, the description of the approval, and the rationale/justification for the approval.

2.2.8 Other Environmental Impact Information

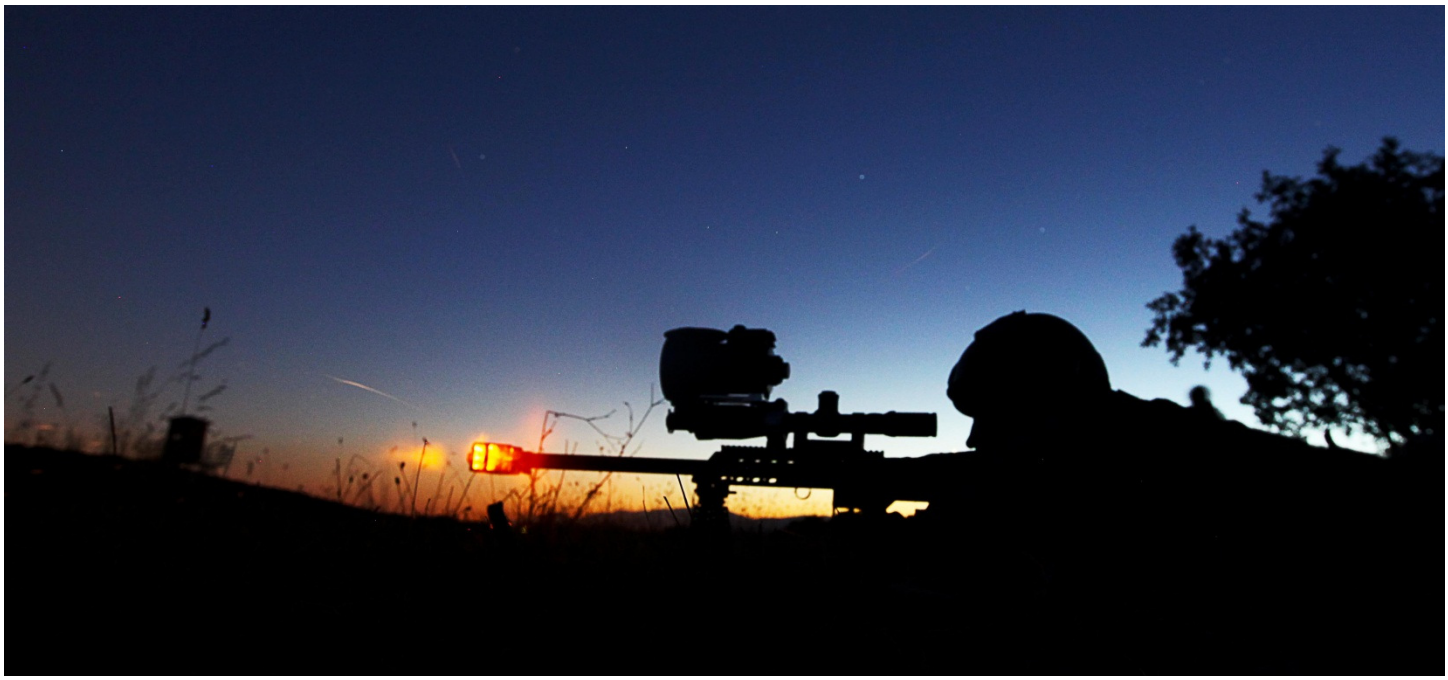
This section identifies additional characteristics of the system that are typically needed by other organizations employing the program's system, many of whom are responsible for their own NEPA/EO 12114 analysis to support fielding of the system. Characteristics of the system may be used to estimate the cumulative ESOH impacts at selected receiving organizations/installations.

Additional system and ESOH information that is not part of HTS or HAZMAT tracking system, but is needed by users, training and testing locations, and receiving activities to prepare arrival and ultimate support of the system may include:

- General system characteristics (e.g., system size and weight characteristics, whether the system disturbs the ground or water), as well as the number of systems to be produced and potential basing locations
- Facilities, landscapes, roadways, treatment facilities/equipment, etc. needed to support the system
- Mission equipment included on the system
- Net Explosives Weight of the system
- Quantity Distance of the system
- Power demands
- Water demands
- Fuel demands
- Noise/sound emissions (e.g., specific decibel levels/characteristics at particular distances)
- Pollution emission data for operational profiles (based on Concept of Operations)
- Water/land emissions (to support permitting and treatment options), and
- Air emissions (to support permitting and treatment options)

2.2.9 Appendix

As required. For example, acronyms may be included in a separate appendix. In addition, a program could include copies of its risk acceptance packages or safety releases.



3 National Environmental Policy Act (NEPA)/ Executive Order (EO) 12114 Compliance Schedule

3.1 NEPA/EO 12114 and Systems Acquisition Programs

NEPA/EO 12114 requires Federal agencies to consider the environmental impacts of proposed actions, including actions within acquisition programs, before they are executed.

Actions that typically require NEPA/EO 12114 analysis include:

- Test and Evaluation to include, but not limited to
  - Technology Demonstration;
  - Developmental Test and Evaluation;
  - Operational Test and Evaluation; and
  - Live Fire Test and Evaluation.
- Construction for an acquisition program;
- Training;
- Materiel fielding, beddown, homeporting, and basing;
- Relocations or realignments;
- Major system modifications; and
- Demilitarization and disposal.

The Program Manager (PM) is responsible for ensuring the appropriate level of NEPA/EO 12114 analysis and documentation for actions under their cognizance. NEPA/EO 12114 documentation is prepared in accordance with DoD Component implementing regulations and guidance. DoDI 5000.02 specifies the Component Acquisition (CAE) Executive or designee, or the CAE of the Lead Executive Component for joint programs, as the final approval authority for system-related NEPA/EO 12114 documentation.

NEPA requirements for actions to be executed outside the influence of the acquisition PM (such as training, materiel fielding, beddown, homeporting, basing, relocations, or realignments) should be included in the NEPA/EO 12114 Compliance Schedule.

Component-level NEPA/EO 12114 implementing policy may vary. Therefore, PMs should refer to Component-specific implementing regulations for additional information about NEPA/EO 12114 analysis and document approval requirements.

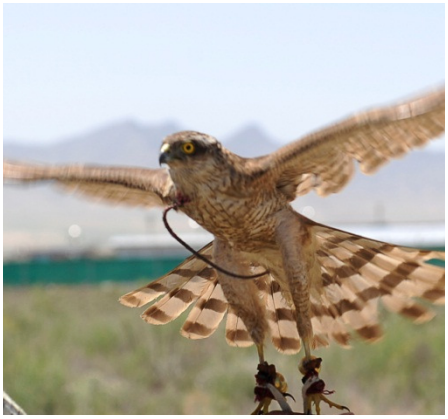
Due to the complex nature of NEPA/EO 12114 compliance requirements, which can impact program cost and schedule, Program Offices need to engage with Command-level NEPA/EO 12114 Environmental Planning offices for guidance. Collaborating with other key stakeholders (e.g., representatives at the receiving installation, test/training ranges) is also vital when conducting the analysis to ensure inclusion of site-specific considerations and approval of the document by the applicable decision makers. Stakeholders will be able to advise the Program office on applicability of current NEPA/EO 12114 documentation and permits to a

proposed action, site-specific environmental conditions, additional analysis considerations due to unique system and operational characteristics, and mitigation measures needed to minimize or eliminate environmental impacts.

In accordance with DoDI 5000.02, the PM must provide system-specific analyses and data to support NEPA/EO 12114 analyses/documents of other organizations, such as test centers, training ranges, and receiving installations, as well as specific compliance and permitting requirements.

The PM should perform the following actions to ensure compliance with NEPA/EO 12114:

- Identify an individual within the acquisition program office who is responsible for managing NEPA/EO 12114 requirements;
- Develop and maintain a NEPA/EO 12114 Compliance Schedule for planning and preparing required documentation for proposed actions, and ensuring sufficient time is allotted for NEPA/EO 12114 analysis and documentation review (see Section 3.2 for additional information regarding the NEPA/EO 12114 Compliance Schedule);
- Identify funding requirements and a sufficient budget to support environmental planning, analysis, documentation, and mitigation efforts;
- Integrate key NEPA/EO 12114-related milestones into the Program's Integrated Master Schedule; and
- Include NEPA/EO 12114 compliance requirements in the Test and Evaluation Master Plan (TEMP).



3.2 NEPA/EO 12114 Compliance Schedule

DoDI 5000.02 requires the NEPA/EO 12114 Compliance Schedule for all acquisition programs, regardless of acquisition category. Acquisition program staff, the system user, and decision makers use the schedule within the acquisition process and the system user to ensure NEPA/EO 12114 compliance is planned and implemented. The NEPA/EO 12114 Compliance Schedule is a required attachment to the SEP, and is usually documented in a table format.

The NEPA/EO 12114 Compliance Schedule includes the following information:

- Proposed actions (based on system-related activities such as, but not limited to, T&E and fielding/basing activities) throughout the life cycle of the program that may require preparation of formal NEPA/EO 12114 documentation;
- The anticipated start date for each proposed action;
- Proponent responsible for preparing the NEPA/EO 12114 documentation for each proposed action;
- The anticipated or actual type of NEPA/EO 12114 document which the proponent should complete prior to the proposed action start date;
- The anticipated or actual start and completion dates for the final NEPA/EO 12114 document; and
- The specific signature approval authority for the documents per DoD Instruction 5000.02 and Component policy.

Depending on where the program is within the acquisition process, the NEPA/EO 12114 Compliance Schedule should be populated with a combination of planned or anticipated actions, completed actions, and planned or actual documents produced.

Table 3.1 is an example of a notional NEPA/EO 12114 Compliance Schedule.

Table 3.1 Notional NEPA/EO 12114 Compliance Schedule

Proposed Action and Location(s)	Proposed Action Start Date	Action Proponent	Anticipated/Actual NEPA/EO 12114 Document	Anticipated/Actual Document Start/ Completion	Signature Approval Authority for NEPA/EO 12114 Document
Developmental Test(DT)	June2004	PM	Categorical Exclusion (CATEX)	Jan 04 - May 04	Service Approval Authority[1], signed 5/23/04
Military Construction Activities at Test Location	Feb 2005	TestCenter[2]	Environmental Assessment (EA)	Jan 04 – Jan 05	Service Approval Authority[1]
Engineering, Manufacturing, and Development DT Program at Overseas Location	April2007	PM	Overseas Environmental Assessment (OEA)	Jan 06 – Feb 07	Service Approval Authority[1]
Operational Test Program	CY 2011	Operational T&E Center[2]	EA or CATEX	TBD; Scoping of Requirements and Schedule in Progress	Service Approval Authority[1]
Low Rate Initial Production (LRIP) Fielding	CY 2007	Fielding Command[2]	CATEX[3]	In Progress	Service Approval Authority[1]
Full Rate Production (FRP) Fielding	CY 2013	Fielding Command[2]	CATEX[3]	Jan 13 – Oct 13	Service approval Authority[1]

Notes:
1. Service Approval Authority varies between Services.
2. The Program office provides system technical specifications, performance, and operational related system data to Service representatives who are responsible for planning and preparing required NEPA/EO 12114 analyses and documentation for fielding of the system.
3. The CATEX will be re-validated for accuracy and applicability prior to each subsequent Low Rate Initial Production and Full Rate Production fielding action/decision.

Program offices that determine there are no system-related activities over the life cycle (e.g., testing, fielding, operation, support, and disposal) that will trigger NEPA/EO 12114 compliance requirements should conduct sufficient review and analyses to support that determination and document the results in the SEP Design Considerations Table.

ACRONYMS

ACAT	Acquisition category
CAE	Component Acquisition Executive
CATEX	Categorical Exclusion
CDRL	Contract Data Requirements List
DAG	Defense Acquisition Guidebook
DFARS	Defense Federal Acquisition Regulation Supplement
DoD	Department of Defense
DoDD	DoD Directive
DoDI	DoD Instruction
DT	Developmental Test
DUSD (I&E)	Deputy Under Secretary of Defense (Installations and Environment)
EA	Environmental assessment
ECR	Engineering Change Request
EO	Executive Order
EMD	Engineering & Manufacturing Development
ESOH	Environment, Safety, and Occupational Health
HAZMAT	Hazardous materials
HTS	Hazard Tracking System
IPT	Integrated Product Team
KPP	Key Performance Parameter
KSA	Key System Attribute
LOR	Level of rigor
LSE	Lead Systems Engineer
MILCON	Military Construction
MS	Milestone
NEPA	National Environmental Policy Act
OEA	Overseas Environmental Assessment
PESHE	Programmatic ESOH Evaluation
PM	Program Manager
PPE	Personal Protective Equipment
PSR	Program Support Review
RAC	Risk Assessment Code
SCC	Software Control Category
SE	Systems Engineering
SEP	Systems Engineering Plan
SwCI	Software Criticality Index
TMRR	Technology Maturation and Risk Reduction
WG	Working Group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