14844- New Concept for PESHE and NEPA/EO 12114 Compliance Schedule

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Bottom Line Up Front

- A new concept in the draft Defense Acquisition Guidebook (DAG) Chapter 4, Systems Engineering, for the structure of the Programmatic Environment, Safety, and Occupational Health (ESOH) Evaluation (PESHE) and National Environmental Policy Act (NEPA)/Executive Order (EO) 12114 Compliance Schedule as part of the new Systems Engineering Plan (SEP) structure will
  - Support streamlining efforts
  - Improve ESOH management, especially during the Technology Development (TD) Phase
  - Improve efficiency and effectiveness of SEP, PESHE, and NEPA/EO 12114 Compliance Schedule

DoDI 5000.02 Enclosure 12, Systems Engineering, Section 12.6 Environment, Safety, and Occupational Health (ESOH)

- Integrate ESOH risk management into the overall systems engineering process for all developmental and sustaining engineering activities
- Eliminate hazards where possible, and manage ESOH risks where hazards cannot be eliminated
- Use the methodology in MIL-STD-882E, “DoD Standard Practice System Safety”
- Report on the status of ESOH risks and acceptance decisions at technical reviews
- Address the status of all high and serious ESOH risks at acquisition program reviews and fielding decisions
- Ensure appropriate management authority has accepted ESOH risks prior to exposing people, equipment, or the environment to known system-related hazards
- Include the user representative in the risk acceptance decision process
- Provide system-specific analyses and data to support other organizations’ National Environmental Policy Act (NEPA)/Executive Order (EO) 12114 analyses
- Ensure appropriate component management authority approves the system-related NEPA/EO 12114 documentation
- Support system-related Class A and B mishap investigations
- Prepare and maintain a Programmatic ESOH Evaluation (PESHE)
- Prepare and maintain NEPA/EO 12114 Compliance Schedule

Driver for Change #1 - Support Streamlining Efforts

- AT&L Memo “Better Buying Power: Guidance for Obtaining Greater Efficiency and Productivity in Defense Spending,” (14 Sep 2010) requires document owners to reduce non-productive processes and bureaucracy

- Acquisition Documentation Streamlining - AT&L issued “Document Streamlining – Program Strategies and SEP” on 20 April 2011 with SEP Outline
  - PESHE Summary and NEPA Compliance Schedule no longer included in Acquisition Strategy
  - Designates the Component Acquisition Executive as the approval authority for the Programmatic ESOH Evaluation (PESHE)
  - Requires the PESHE be included in the Systems Engineering Plan (SEP) in Table 4.6-1 along with the NEPA Compliance Schedule at MS-B and MS-C
  - Includes ESOH Design Consideration in SEP Table 4.6-1

NOTE: SEP is required at MS-A, MS-B, and MS-C

20 Apr 2011 SEP Outline Table 4.6-1

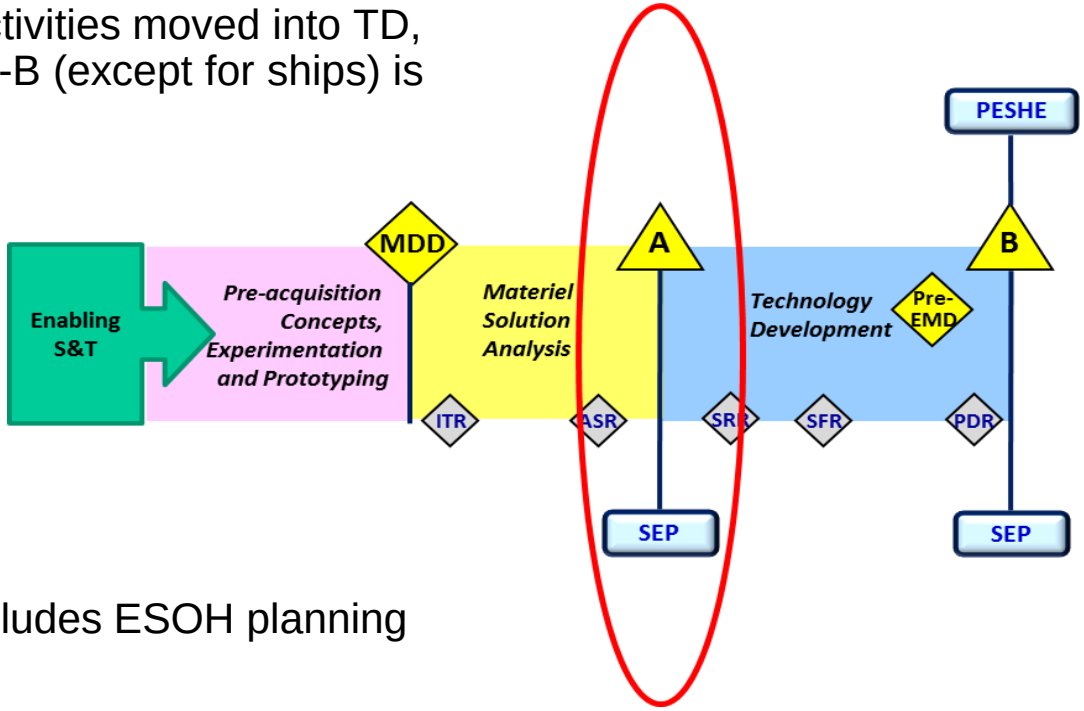
Mapping Key Design Considerations into Contracts					
Name (Reference)	**Cognizant PMO Org**	**Certification**	**Documentation (hot link)**	**Contractual Requirements (CDRL #)**	**Description/Comments**
SE Tradeoff Analysis for Affordability			(MS B)		Provide the systems engineering trade-off analysis showing how cost varies as the major design parameters and time to complete are traded off against one another. The analysis will reflect attention to capability upgrades. The analysis will support MDA approval of an Affordability Requirement to be treated as a Key Performance Parameter (KPP) in the Acquisition Decision Memorandum. The analytical summary will include a graphic illustrating cost tradeoff curves or trade space around major affordability drivers (including KPPs when they are major cost drivers) to show how the program has established a cost-effective design point for those affordability drivers.
Corrosion Prevention and Control (ACAT I only)			CPCP (MS B & C)		Describe how design will minimize impact of corrosion and material deterioration on system throughout system life cycle.
Environmental Safety and Occupational Health (ESOH)			PESHE NEPA Compliance Schedule (MS B & C)		Describe how design will minimize ESOH by summarizing how program will integrate ESOH considerations into SE processes to include method for tracking hazards and ESOH risks and mitigation plans throughout the life cycle of system.
Human Systems Integration (HSI)					Summarize how HSI will be integrated within the SE processes, specifically addressing the human operator and maintainer requirement allocation approach that accounts for total system performance.
Item Unique Identification (IUID)			IUID Implementation Plan (MS B & C)		Describe how the program will implement IUID to identify and track applicable major end items, etc.
Manufacturing					Assess the manufacturing risk and readiness of all contributory processes and particularly those that are new or unproven in a full-rate production environment.

Driver for Change #2 - Improve ESOH Management, Especially During TD

- DoDI 5000.02, 8 December 2008
  - Enclosure 3 Statutory Tables mandate a PESHE at Program Initiation for Ships, MS-B, MS-C, and Full-rate Production Decision Review
  - PESHE includes NEPA/EO 12114 Compliance Schedule
  - Acquisition Strategy includes PESHE summary and NEPA/EO 12114 Compliance Schedule
- Current Defense Acquisition Guidebook (DAG)
  - Defines the Office of the Secretary of Defense (OSD) expectations for implementing 8 December 2008 DoDI 5000.02
  - Basis for Program Support Review (PSR) evaluations
  - Contains requirements for PESHE and NEPA/EO 12114 Compliance Schedule
- Gap in ESOH Management planning without a PESHE required at Milestone A
  - DoDI 5000.02 and subsequent AT&L policy memorandums shifted more design development earlier to the TD Phase, pre-Milestone B
  - “A rule of thumb is that 10 percent to 25 percent of product drawings and associated instructions should be complete, and that 100 percent of all safety-critical component (Critical Safety Items and Critical Application Items) drawings are complete.” (DAG, 29 July 2011)

Driver for Change #2 - Improve ESOH Management, Especially During TD

- ESOH planning needs to be addressed at MS-A to affect the PDR
  - Pre MS-B Preliminary Design Review (PDR) and Prototyping require ESOH involvement
    - ESOH risk management status reporting required at PDR
    - NEPA/EO compliance required for Development and Test activities
  - With more systems engineering activities moved into TD, requirement for first PESHE at MS-B (except for ships) is late to need



- SEP is required at MS A and now includes ESOH planning

Driver for Change #3 - Improve Efficiency & Effectiveness

- Need clarity between the SEP, PESHE, and NEPA/EO 12114 Compliance Schedule content requirements while avoiding redundancy
- Most PESHEs do not contain the required data on ESOH risk management, hazardous materials information, and environmental impacts
- Most PESHEs focus on environmental compliance, rather than ESOH risk management
- Most NEPA/EO 12114 Compliance Schedules are late to need and lack required specificity
- As a result of these deficiencies:
  - Program Offices fail to understand and implement DoD expectations for ESOH management
  - Oversight functions cannot assess effectiveness of Program Office ESOH management efforts

Objectives for the New Concept

- Respond to each of the three drivers
- Satisfy the ESOH documentation requirements in DoDI 5000.02, Enclosure 12, Systems Engineering (SE)
  - Identify ESOH responsibilities
  - Explain the strategy for integrating ESOH considerations into the SE process
  - Identify ESOH risks and their status
  - Describe the method for tracking hazards throughout the life cycle of the system
  - Identify hazardous materials, wastes, and pollutants (discharges/emissions/noise) associated with the system and plans for their minimization and/or safe disposal
  - Provide a NEPA/EO 12114 Compliance Schedule

NOTE: New concept does not change the ESOH process requirements in DoDI 5000.02, E12.6

New Concept

- Clearly defines the ESOH content requirements for the SEP, PESHE, and NEPA/EO 12114 Compliance Schedule to reinforce that ESOH management is an integral part of the systems engineering process
  - Starting at MS A, the SEP contains ESOH management planning
  - PESHE contains the data produced from implementing ESOH management planning
  - NEPA/EO 12114 Compliance Schedule is a separate document from PESHE
    - Provide a Compliance Schedule supporting TD Phase in MS A SEP
    - Provide Compliance Schedule for life cycle in MS B and C SEPs
- This concept:
  - Supports the OSD Acquisition Documentation Streamlining efforts
  - Improves ESOH management during TD phase
  - Improves effectiveness and efficiency of SEP, PESHE, and NEPA/EO 12114 Compliance Schedule documents

New Concept
SEP – ESOH Planning

Column Heading in SEP Table 4.6-1	Expected Information (provided or attached)
Cognizant PMO Org	Organizational structure for integrating ESOH (or refer to Table 3.4.4-2 if it includes the ESOH team details) and the Program Office ESOH point of contact
Certification	Required ESOH approvals, endorsements, and releases
Documentation	PESHE and NEPA/EO 12114 Compliance Schedule at MS B and MS C
Contractual Requirements (CDRL#)	ESOH contractual language, ESOH Contract Data Requirements List (CDRL) items, and ESOH DFARS clauses
Description/Comments	Description of how design will minimize ESOH risks by summarizing how the program has integrated ESOH considerations into SE processes including the method for tracking hazards and ESOH risks and mitigation plans throughout the life cycle of system

New Concept
PESHE – ESOH Data

- ESOH Risk Matrices (for hardware and software) used by the program with definitions for severity categories, probability levels, risk levels, and risk acceptance and User Representative concurrence authorities.

- Hazard data
  - For each hazard, include the required risk management data as defined in MIL-STD-882E
  - Includes environment and occupational health risks, as well as safety risks

- Hazardous materials management data (if not included as part of the hazard data)

- Environmental impact information not included in the hazard data or hazardous materials management data needed to support installation and range analyses (e.g., hazardous waste and pollutant emissions data)

New Concept
NEPA/EO 12114 Compliance Schedule

- Compliance Schedule is a separate document from PESHE
  - Provide a Compliance Schedule supporting TD Phase in MS A SEP
  - Provide Compliance Schedule for life cycle in MS B and C SEPs

- Includes:
  - Each proposed action (e.g., testing or fielding)
  - Proponent for each action
  - Anticipated start date for each action at each specific location
  - Anticipated NEPA/EO 12114 document type
  - Anticipated start and completion dates for each document
  - The document approval authority

Summary of the New Concept

- Further embeds ESOH as an integral part of the systems engineering process
- Does not alter the ESOH process requirements in DoDI 5000.02, E12.6
- Supports the OSD Document Streamlining initiative
- Addresses the gap in ESOH planning for the TD phase
- Re-aligns the ESOH documentation requirements to improve efficiency and effectiveness
  - SEP becomes repository for ESOH planning information
    - Identifies ESOH responsibilities
    - Explains the strategy for integrating ESOH considerations into the SE process
    - Describes the method for tracking hazards throughout the life cycle of the system
    - Plans for minimization and/or safe disposal of hazardous materials, hazardous wastes, and pollutants
  - PESHE becomes the repository for ESOH implementation data
    - Identifies ESOH risks and their status
    - Identifies hazardous materials, wastes, and pollutants (discharges/emissions/noise) associated with the system
  - NEPA/EO 12114 Compliance Schedule becomes a separate document

PESHE and NEPA/EO 12114 Compliance Schedule are linked to the SEP at MS B and C

Questions

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BACKUP

New Concept
SEP – ESOH Planning

Location in SEP per April 2011 Outline	Expected Information
Section 2.2 Technical Certifications **Table 2.2-1 Certification Requirements**	ESOH-related certification requirements including, but not limited to: • Airworthiness • Navy Weapon System Explosives Safety Board (WSESRB) •
Section 3.3 Engineering and Integration **Risk Management** **Table 3.4.4-1, and Table 3.4.4-2**	• Explain the program's ESOH risk management approach per MIL-STD-882E, to include ESOH risk reporting
Section 3.4. Technical Organization	• Include ESOH-related IPTs and Working Groups
Section 3.6 Technical Performance Measures (TPM) and Metrics **Table 3.6-2 TPM**	• Include ESOH-related KPPs, KSAs, or other regulatory/policy driven requirements
Section 4.4 Technical Reviews **Table 4.4-1 Technical Review Details**	• Include ESOH SMEs as PMO participants

Future Approach to ESOH in Program Documents

- Systems Engineering Plan (SEP) –
  - Contains the ESOH management planning information
  - Contains ESOH design considerations as an integral part of the requirements analysis process including trade study criteria
  - Important for Milestone (MS) A to ensure SE addresses ESOH during the Technology Development (TD) Phase which includes a significant amount of the design development, testing, and the Preliminary Design Review
- PESHE –
  - Documents ESOH design consideration data produced by executing the ESOH planning described in the SEP
- NEPA/EO 12114 Compliance Schedule –
  - A schedule covering all system-related activities

Risk Assessment Code (RAC) – A combination of one severity and one probability level

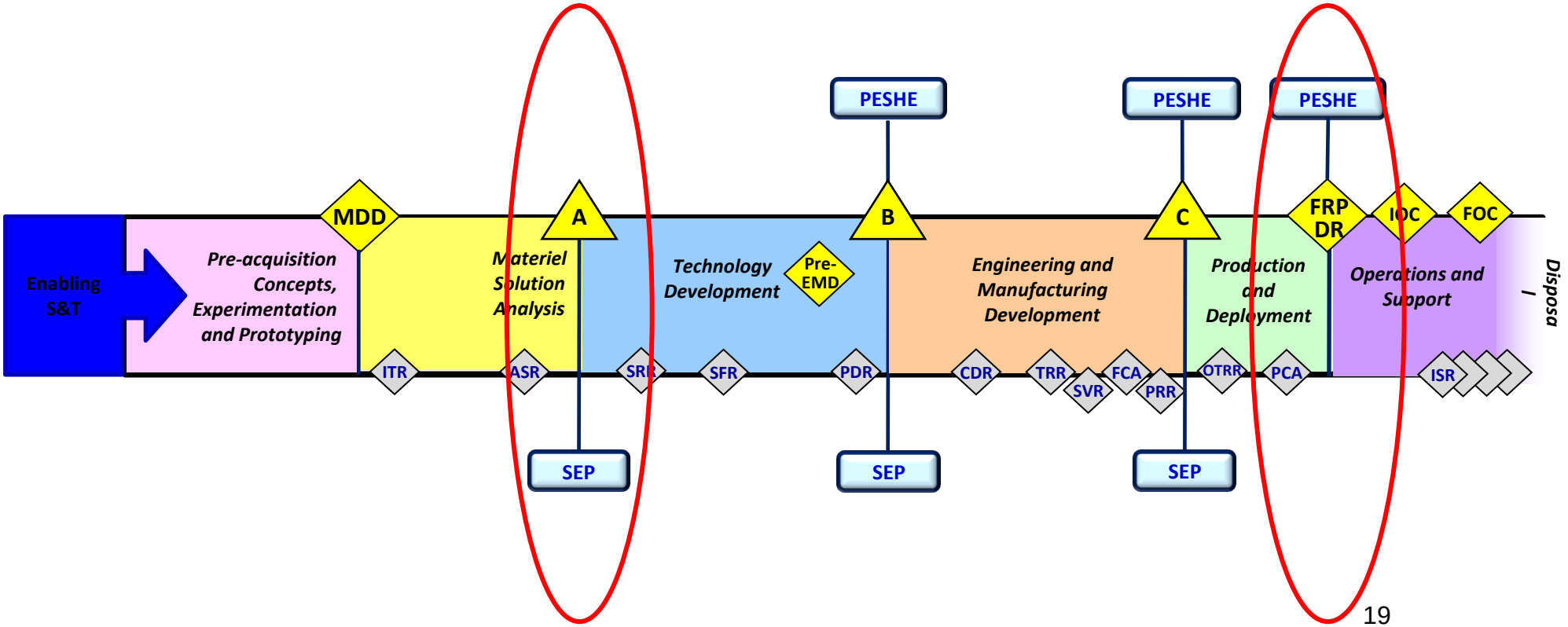
RISK ASSESSMENT MATRIX				
SEVERITY / PROBABILITY	Catastrophic (1)	Critical (2)	Marginal (3)	Negligible (4)
Frequent (A)	High	High	Serious	Medium
Probable (B)	High	High	Serious	Medium
Occasional (C)	High	Serious	Medium	Low
Remote (D)	Serious	Medium	Medium	Low
Improbable (E)	Medium	Medium	Medium	Low
Eliminated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

Example RAC=3D

- Significance: Adopted a single term to refer to the combination of severity and probability vice the Risk Assessment Value (1-20) or Hazard Risk Index

“Expectations Memo,” Cont.

- Currently, Gaps in Acquisition Policy and Guidance
  - Disconnect between when SEP and PESHE are required

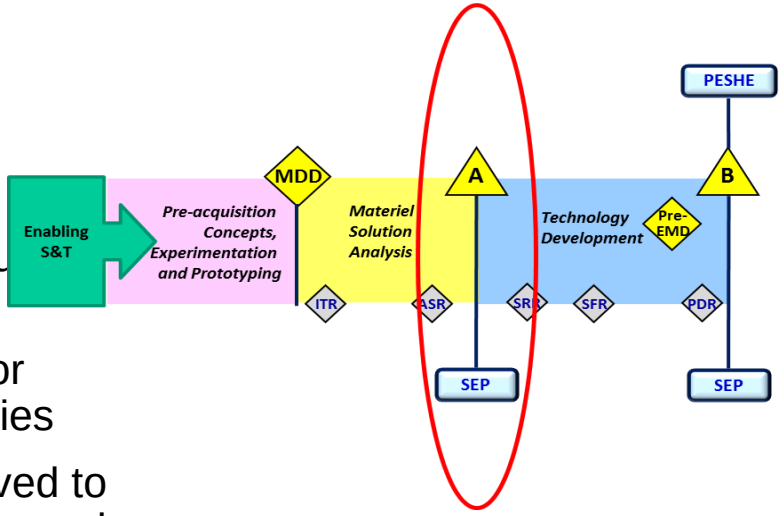


ESOH Considerations Need to be addressed at MS-A

- Rationale:
  - Pre MS-B Preliminary Design Review (PDR) and Prototyping require ESOH involvement

    ESOH risk management statu reporting required at PDR

    NEPA compliance required for Development and Test activities
  - With Technology Development (TD) activities moved to left, PESHE out of alignment with acquisition framework
  - Supports current initiatives for earlier Systems Engineering



- **Proposal: Publish this as policy in next update to DoDI 5000.02**

DoD Acquisition ESOH IPT - DAG Chapter 4 Working Group

- DoD Acquisition ESOH Integrated Product Team (IPT) created a DAG Chapter 4 Working Group (WG) to address rewrite of the ESOH Section:
  - Members were DoD Principals, with all Services participating
- Focus:
  - Identifying most relevant information for section
  - Updating to incorporate MIL-STD-882E
  - Clarifying ESOH content for the Systems Engineering Plan (SEP) and PESHE
  - Risk reporting at Program and Technical Reviews

Driver for Change #2 - Improve ESOH Risk Management, Especially Post-Milestone A

- SEP Table 4.6-1 now requires ESOH planning be addressed at each milestone, including Milestone A
  - Column 1: "Cognizant PMO Organization"– PMO IPTs/WGs responsible for ESOH
  - Column 2: "Certification"-- Required ESOH certifications, e.g., WSERB
  - Column 3: "Documentation (hot link)"-- Include PESHE and NEPA/EO Compliance Schedule at MS-B & MS-C as hot link or attachments
  - Column 4: "Contractual Requirements (CDRL Number)"– Include contract language requiring use of MIL-STD-882D and other ESOH requirements, possibly as attachment
  - Column 5: "Description/Comments" – "Describe how design will minimize ESOH by summarizing how program will integrate ESOH considerations into the SE processes, to include method for tracking hazards and ESOH risks and mitigation plans throughout the life cycle of system."