9097 - Acquisition ESOH Risk Management - How to Make It Work

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Purpose

• To describe how the DoD Acquisition Environment, Safety, and Occupational Health (ESOH) Risk Management (RM) process can work most effectively as part of the Systems Engineering process

• To highlight common elements of unsuccessful and successful ESOH RM processes
Background

• Many DoD Acquisition Program Offices have tried and not been very successful at implementing effective and efficient ESOH RM efforts, while some Program Offices have implemented programs that have been successful.

• Based on lessons learned from multiple program office experiences, there are some common elements of unsuccessful and successful ESOH RM efforts.

How do you feel about your ESOH RM efforts?

Unsuccessful ESOH RM efforts vs. Successful ESOH RM efforts
USD(AT&L) Policy Memorandums Related to ESOH

• Defense Acquisition System Safety, September 23, 2004
  – Use Standard Practice for System Safety, MIL-STD-882D to manage ESOH risk
  – Report ESOH risk status and acceptance decisions at technical and program reviews

• Reducing Preventable Accidents, November 21, 2006
  – Address status of each High and Serious ESOH risk and compliance with applicable safety technology requirements at all program reviews

  – Formal acceptance of ESOH risks prior to exposing people, equipment, or the environment to a known system-related ESOH hazard
  – User Representative Formal Concurrence for High and Serious ESOH risks

**These basic requirements have been in place for several years & incorporated into the new DoDI 5000.02**
• December 8, 2008 DoD Instruction (DoDI) 5000.02 defines the basic requirements for Acquisition Program Office ESOH RM to be part of the overall Systems Engineering process.
Guidance for ESOH / SE Integration

• DoD Defense Acquisition Guidebook (DAG)
  – Provides detailed guidance on how DoD expects Acquisition Program Offices to meet the ESOH RM requirements defined in DoDI 5000.02
  – https://acc.dau.mil/dag

• ESOH In Acquisition – Integrating ESOH into Systems Engineering
  – Depicts when ESOH activities should be performed to influence system design throughout SE process
  – Includes the ESOH Management Evaluation Criteria published by DDR&E and DUSD(I&E)

• Acquisition Community Connection (ACC)
  – Provides best practices on how to integrate ESOH considerations into the systems engineering and acquisition processes
  – https://acc.dau.mil/esoh
Common Elements of **Unsuccessful** ESOH RM Efforts

- Disconnect between ESOH Analysis and Design Activities
  - Difficult to implement ESOH recommendations for completed SE work products
  - ESOH recommendations will meet resistance and typically have limited success
  - Failure to follow through on recommendations and to work to viable mitigation solutions with Design Activities and the User Community
  - Failure of E, S, and OH Subject Matter Experts to work closely together with SE
    - E, S, and OH provide conflicting program recommendations on same issues
    - SSWG focused only on Safety; EWG focused only on Pollution Prevention
  - Failure to have E & OH Representatives as part of the ESOH effort
  - Trying to communicate a major design change to reduce ESOH risk at the wrong time could cost the program significant schedule and budget – obviously this will not be well-received
Common Elements of **Unsuccessful** ESOH RM Efforts (cont)

- ESOH Personnel are viewed by Management and Engineering as road blocks, not team members
- While the amount of resources applied to the ESOH RM efforts will have an impact on the quality of the outcomes, it is not the most critical factor
- Many large Acquisition Programs have allocated significant resources (funding and personnel) for ESOH RM
  - Can produce reduction of ESOH risks on the system despite organizational impediments
  - For example, large programs have been doing a good job at Hazardous Materials Management
  - However, utilizing substantial program funding for ESOH RM is not a sustainable approach
Common Elements of Successful ESOH RM Efforts

• An ESOH RM effort has to be part of and be able to influence the day-to-day decision making that occurs in the Systems Engineering process
  – Provide informative and timely ESOH inputs to Systems Engineering
    » Direct line of communication to Systems Engineering, including Product/Engineering Integrated Product Team (IPTs)
    » Daily ESOH communication via IPT meetings, phonecons, test logs
    » Direct line of communication to test sites and/or end-users
  – E, S, and OH Subject Matter Experts work together to optimize recommendations across these functional areas
  – Implement closed-loop ESOH hazard tracking system, to include status of recommended mitigation measures
  – Integrate ESOH within Configuration Management Processes
    » ECR/ECP reviews, technical document reviews, etc.
    » Require ESOH review and approval for changes to be finalized
  – Participate in program and technical reviews (esp. PDR & CDR) to report risk and applicable ESOH technology status
Common Elements of Successful ESOH RM Efforts (cont)

- Program Manager and Chief Engineer are knowledgeable and understanding of ESOH efforts
  - PM and Chief Engineer views ESOH as team members and not as roadblocks

- The knowledge, skills, and abilities of the ESOH practitioners supporting a program can have a significant impact on the success of the Acquisition Program Office's ESOH RM efforts
  - ESOH practitioners need to be knowledgeable in their system, their system’s operating environment, and also knowledgeable in applicable laws and regulations

- ESOH Professionals should have strong, in-depth knowledge of the ESOH risks AND potential mitigations
  - During IPT meetings and before/during design reviews, ESOH participation can provide expert feedback real-time to best influence design to reduce ESOH risk
  - During test site visits or end-user discussions, ESOH participation can receive real-time feedback on suggestions and/or concerns from those that work daily with the system to best influence design to reduce ESOH risk
• Programmatic ESOH Evaluation (PESHE): A living document that guides and documents identification and management of ESOH risks.
  – The ONLY DoD-required ESOH document!
  – Successful PESHEs document what the programs plans to do or is doing, is consistent with where the program is in the life cycle, and **does not** just restate policy.

Common Elements of **Successful** ESOH RM Efforts (cont)
Conclusion

• If the ESOH team is removed from the Systems Engineering process, having a direct line to the Program Manager and/or having a large ESOH budget may not effectively influence design changes to mitigate ESOH risk.

• If the ESOH RM efforts (resources and personnel) are a fully integrated part of the Systems Engineering team and efforts, then the likelihood of having a successful ESOH RM effort will be much higher than a better-resourced ESOH RM effort that is operating outside of the System Engineering process, even if it is reporting directly to the Program Manager.

• Knowledgeable and experienced ESOH Professionals can effectively communicate ESOH risks and mitigations on a day-to-day basis within the Systems Engineering process to influence design changes and eliminate or reduce risk.
Questions?

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