



16977 – ODUSD(I&E) Environment, Safety, and Occupational Health (ESOH) in Acquisition Initiatives 2014

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(Installations & Environment)**



Outline

Acquisition Environment, Safety, and Occupational Health (ESOH)

➤ Mission

➤ Policy, Guidance, and Oversight

- DoDI 5000.02, Operation of the Defense Acquisition System
- Defense Acquisition Guidebook
- ESOH in the SEP, PESHE, and NEPA/EO 12114 Compliance Schedule
- Program Support Assessments
- Program Oversight

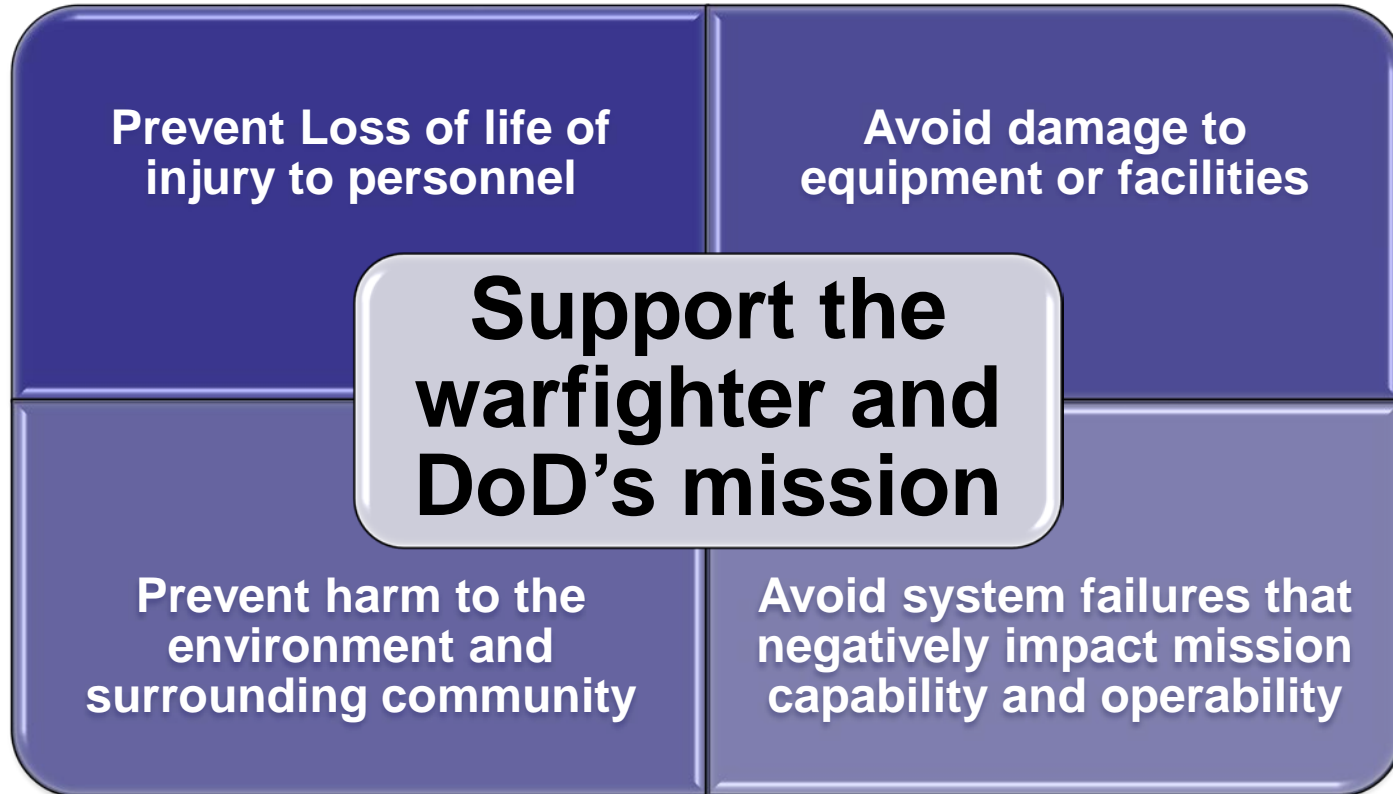
➤ Initiatives

- Life Cycle Analysis in Acquisition
- Implementing Better Buying Power
- Hazardous Materials Management – Update to NAS-411-1
- HFC Minimization





Acquisition ESOH Mission





Acquisition ESOH Policy, Guidance, and Oversight





Acquisition ESOH Policy

➤ Interim DoD Instruction 5000.02, *Operation of the Defense Acquisition System*, issued in November 2013

- Incorporates Facts-of-Life changes & *Significantly* Streamlines content
- Identifies new Acquisition system types
 - All types of systems require system safety analyses
 - Software system safety cannot be overlooked
- References MIL-STD-882E, Standard Practice System Safety
- Clarifies ESOH Risk Acceptance for Joint Programs
- Better Addresses ESOH for early Testing and Development Activities





Acquisition ESOH Policy

➤ **Interim DoD Instruction 5000.02, *Operation of the Defense Acquisition System***

- ESOH Section incorporates Better Buying Power policy and minimizes duplication of information in acquisition documents
 - Program managers (PM) will document the ESOH planning in the Systems Engineering Plan (SEP)
 - For example, how ESOH is integrated into systems engineering planning, includes, which Integrated Product Team(s) have ESOH responsibilities
 - PM will document results of results of their planning and implementation in the Programmatic ESOH Evaluation (PESHE)
 - Hazards and ESOH risk data provided
 - ESOH risk management information
 - Hazardous materials management data, including minimization efforts
 - PM will develop a National Environmental Policy Act (NEPA) and Executive Order (EO) 12114 Compliance Schedule



Acquisition ESOH Guidance

- **Defense Acquisition Guidebook (DAG) Chapter 4 Changes:**
- ESOH Section in Chapter 4 elaborates on ESOH content for the SEP, PESHE, and NEPA/EO 12114 Compliance Schedule
 - Updated Sustainable Procurement guidance
 - Added Sustainability Analysis (Section 4.3.19.2.) with Life Cycle Assessment as a Systems Engineering process tool
 - Added Operational Energy as a Design Consideration
 - Demilitarization & Disposal section rewritten





Acquisition Community Connection (ACC) Update

➤ Updated the ACC ESOH Community of Practice (CoP)

- Removed outdated content to reflect current policy/guidance
- Added links on front page to specific key ESOH areas
 - Synchronized new look to match Systems Engineering CoP
- Front page of ESOH CoP:
 - Overview
 - Topics
 - Documents
 - Resources
 - Compliance
 - ESOH Policy

ACC Website:
<https://acc.dau.mil/esoh>





ACC Update (continued)

➤ ACC Topics

- Air Quality Considerations
- Noise - Far Field
- Noise - Occupational
- ESOH Risk Management
- Hazardous Materials Management
- Electromagnetic Radiation (EMR)
- Sustainable Procurement Program
- Sustainability and Systems Acquisition
- Demilitarization and Disposal Considerations
- Key Mandatory Definitions from MIL-STD-882E
- System Safety Methodology – MIL-STD-882E
- Chemical and Material Risk Management Program
- National Environmental Policy Act and Executive Order 12114





Acquisition ESOH Oversight - Program Support Assessments (PSAs)

- **Office of Deputy Assistant Secretary of Defense for Systems Engineering (ODASD(SE)) leads PSAs**
 - DoDI 5000.02 mandated Defense Acquisition Board decision support
 - Provides a Systems Engineering Focused Review
 - Examines multiple aspects of Program
- **ODUSD(I&E) provides ESOH Subject Matter Experts to:**
 - Validate program compliance
 - Assess effectiveness of Acquisition ESOH policy
 - Work closely with program teams
- **Fiscal Year (FY) 2014 supported Small Diameter Bomb II PSA**
- **FY 2015 plan to support various PSAs (Joint Air-to-Ground Missile (JAGM), etc.)**



Program Oversight

- **Some programs lacked a PESHE or requesting to tailor / waive the PESHE requirement**
 - Impact: Programmatic risks from lack of ESOH analyses (e.g., software system safety analyses)
- **One program proposed use of Halon 1301, ozone depleting substance (ODS) as fire suppression agent**
 - Impact: Future supply risks for meeting mission requirements (legacy systems and future systems requiring Halon 1301)
- **One program was not working to minimize hexavalent chromium**
 - Impact: Potential exposure risks to maintainers, increased end-of-life costs to Demilitarization/Disposal.
- **In some instances, National Environmental Policy Act (NEPA) analyses were missing**
 - Impact: Schedule Risks to programs

ODUSD(I&E) Working to Minimize Impacts



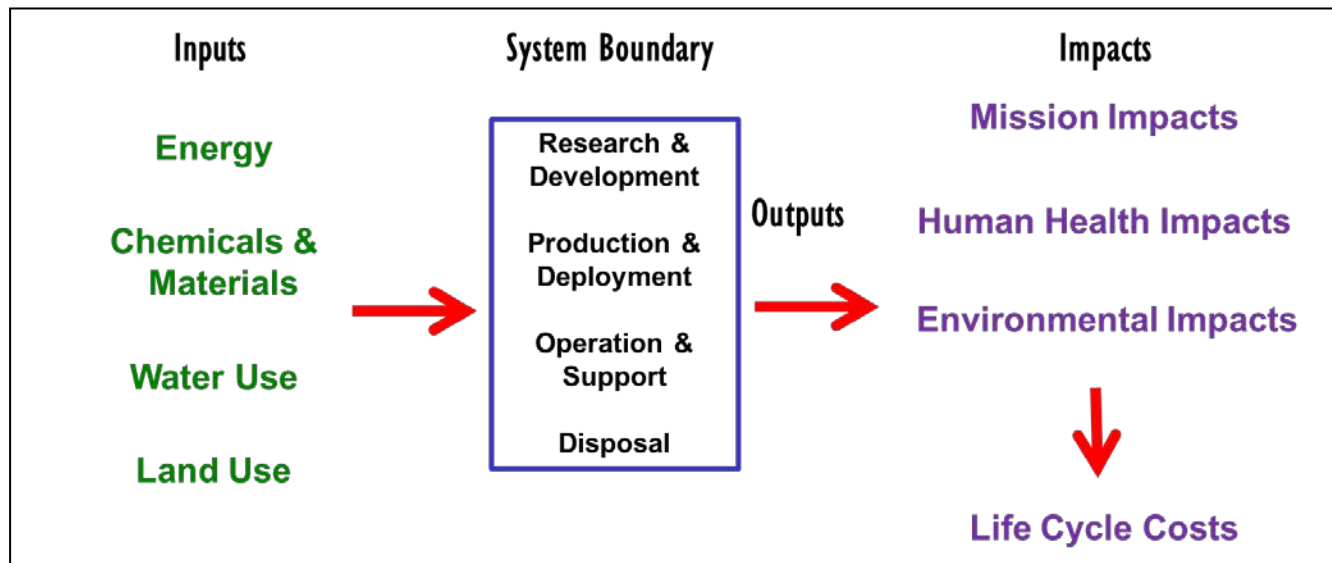
Acquisition ESOH Initiatives





Life Cycle Sustainability Analysis

- **Develop a sustainability analysis Program Offices can use to help understand life cycle impacts during the design process and influence decision making**
 - Human health and environmental impacts
 - Life cycle costs of impacts
- **Approach: Develop a Sustainability Analysis Using Life Cycle Assessment Methods**
 - Tailored analysis for DoD – ***Streamlined Life Cycle Analysis (SLCA)***





Sustainability Analysis Pilot Project Collaboration with Boeing & Sikorsky

- **Pilot project to calculate impacts & life cycle costs of two design alternatives for two current acquisitions manufactured and sustained over 30 years:**



117 Boeing P-8A



573 Sikorsky MH-60R

- **Example life cycle costs for chemical and materials:**
 - Personal protective equipment
 - Workplace IH monitoring
 - Air handling/waste treatment systems
 - HAZMAT training
 - Hazardous waste management and disposal
 - Emissions/discharge permits

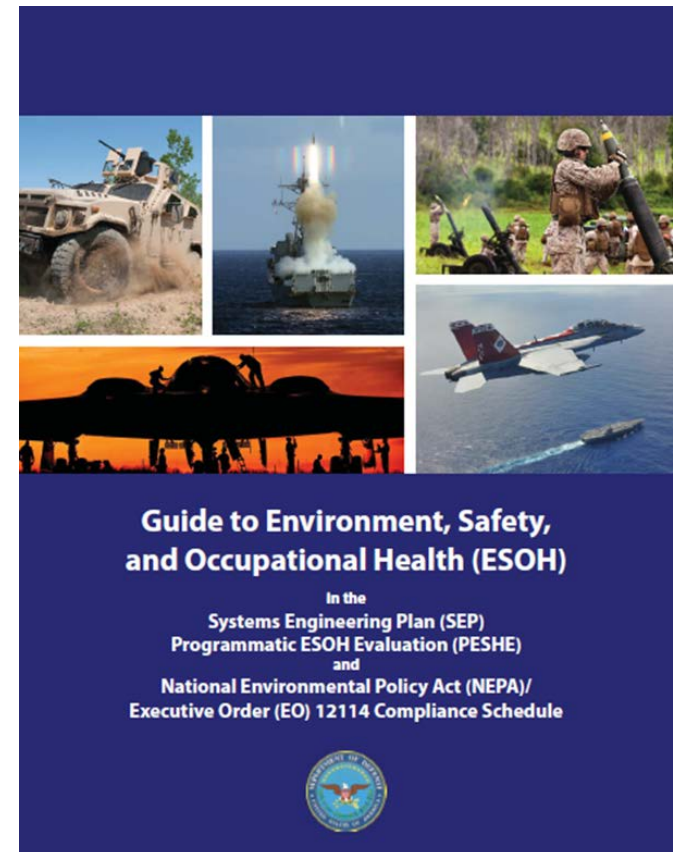


Implementing Better Buying Power Memos

Streamlining and Integrating ESOH in Acquisition Documents

➤ **Approach: Developed Guide to ESOH in the Systems Engineering Plan (SEP), Programmatic ESOH Evaluation (PESHE), and NEPA/EO 12114 Compliance Schedule:**

- Built on lessons learned & best practices from Acquisition ESOH professionals
- Eliminates redundancy in acquisition documents
- Delineates expectations for ESOH content in documents, which if followed, should optimize document development and approval
- Describes technical planning for ESOH considerations in SE
- Documents data generated from implementing the technical plan
- Improves ESOH risk management
- Resource for developing system documentation and fielding activities





Implementing USD(AT&L) Better Buying Power

Next Phase: Promote Better Buying Power 3.0

➤ Potential Focus Areas:

- Streamline documentation requirements and staff reviews
- Strengthen organic engineering capabilities & Improve requirements definition
- Improve our leaders' ability to understand and mitigate technical risk
- Department of Defense Instruction on Acquisition of Services





Hazardous Materials (HAZMAT) Management

- **Promote Hazardous Materials Minimization**
- **Current Challenges:**
 - Multiple management approaches
 - Multiple hazardous material lists
 - DoD's priorities were not clear to industry
- **Approach: Align National Aerospace Standard (NAS) 411 (Hazardous Materials Management Program Standard Practice) & MIL-STD-882E Task 108 (Hazardous Materials Management Plan)**
 - MIL-STD-882E, Task 108, Hazardous Materials Management Plan
 - Prioritizes efforts to eliminate or reduce hazardous material usage by categorizing targeted materials as Prohibited, Restricted, and Tracked
 - Includes HAZMAT list by category as contractual requirements
 - NAS 411 provides:
 - Detailed guidance for implementing MIL-STD-882E, Task 108
 - Lists of baseline hazardous materials in the three categories





Hazardous Materials Management, Cont.

- **Phase 1: Updated National Aerospace Standard (NAS) 411, Hazardous Materials Management Program (HMMP), and developed complementary NAS 411-1, Hazardous Materials Target List (HMTL)**
 - NAS 411 Provides
 - Contractors with Task 108 implementation guidance
 - *Intent*: Program Office puts Task 108 in Request for Proposal (RFP) and Contractor Proposal includes NAS 411
 - *Alternative*: Program Office puts NAS 411 in RFP
 - Guidance on establishing a HAZMAT list by category
 - Procedures to obtain Government waiver to use Prohibited HAZMAT in a specific application
 - NAS 411-1
 - Provides a “starting point” for program offices and contractors with baseline lists of Prohibited and Restricted HAZMAT
 - Includes a definition for a “Tracked HAZMAT”
 - Does not include a baseline “Tracked HAZMAT” list (Phase 2 effort)



Hazardous Materials Management, Cont.

- **Phase 2: Update to National Aerospace Standard 411-1 and Create a baseline Tracked list for NAS 411-1**
 - DoD Acquisition ESOH IPT Working Group screened 1007 materials for the proposed Tracked list using:
 - HAZMAT use(s) and carcinogen information
 - Hazardous Materials Information Resource System
 - Final product is a proposed “tracked list” containing 379 materials
- **Way Ahead on Tracked List Development**
 - AIA will
 - Conduct further analysis of the DoD proposed “tracked list”
 - Coordinate with DoD on any proposed changes to DoD Tracked list before publishing the list in a NAS 411-1 update



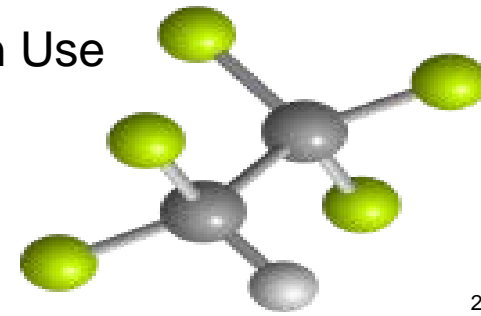


Hydrofluorocarbons (HFCs) Minimization

➤ Promote alternatives to replace HFC's that contribute significantly to Global Warming

➤ Background:

- Replacements for Ozone Depleting Substances (ODSs)
 - Chlorofluorocarbons (CFCs), Hydro-Chlorofluorocarbons (HCFCs), & Halons
- Widespread & Important Uses
 - Refrigerants
 - Fire Suppressants
 - Foam Blowing Agents
 - Aerosols & Solvents
- Contribute to Climate Change
 - Global Warming Potential (GWP) Thousands of Times More Potent Than CO₂
 - Already Regulated by UN Framework Convention on Climate Change & U.S. Clean Air Act (USCAA)
 - DoD Emissions Reported to CEQ and OMB in the Annual Energy Management Report/Greenhouse Gas Inventory per EO 13514
- Emerging Proposals to Phase-Down Production and/or Ban Use
 - EU Fluorinated-Gas Regulation
 - Montreal Protocol Amendment Proposals
 - U.S. Climate Action Plan

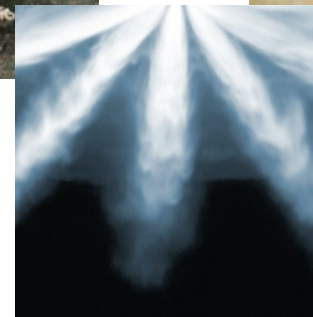




HFC Minimization, Cont.

➤ HFCs Used In Virtually All Existing & New Weapon Systems

- HFC-134a and various blends consisting of HFC-32, -125, -134a, and -143a
 - New Design Shipboard Air-Conditioning & Refrigeration
 - New Design Aviation & Ground/Tactical Environmental Control
- HFC-227ea and HFC-125
 - New Design Ground Combat Vehicle Fire/Explosion Suppression
 - New Design Shipboard and Aviation Fire Suppression
- HFC-236fa and HFC-134a
 - Retrofit for Legacy Shipboard AC&R
- HFC-43-10mee, HFC-245fa, and HFC-365mfc
 - Solvents for Weapons System Production & Maintenance
- HFC-134a and HFC-152a
 - Aerosol Propellants for Weapons System Maintenance
- HFC-245fa
 - Insulating Foam on Shelters
- Others
 - Insulating Foams
 - Structural Foams
 - Ordnance Applications
 - Wind Tunnels





HFC Minimization, Cont.

➤ **Minimization Effort Strives to Protect DoD Equities**

- Clean Air Act ,Services Steering Committee, Ozone Depleting Substances Subcommittee Interagency Coordination
 - Meet regularly with Environmental Protection Agency and the Department of State
 - Review & Comment on Proposed Rules and US Government Positions
- Ensure a Phase-Down not a Phase-Out
 - Critical Uses With No Suitable Alternatives
 - Lessons-Learned from Managing Montreal Protocol ODS Essential / Critical Use Exemptions
 - Seek Military Exemptions Should Phase-Down Plateau Drop Too Low
- External Engagement
 - Other Militaries
 - Industry
 - Other Fora (International Organizations, Non-Government Organizations, etc.)



Path Forward – Minimization of HFC's

➤ Acquisition Community and Program Managers should evaluate risks

- Implement Mandatory HFC Conservation Measures
 - Review & Revise Maintenance Procedures As Necessary
 - Require Recovery, Recycling, and Reclamation
- Use HFCs Only Where Necessary
 - Begin Shifting To Existing Lower-GWP Alternatives
 - Example: Shift From R-404A to R-407A = 46% Reduction in GWP
 - Start Looking At New Low-GWP Alternatives
- Look At The Big Picture
 - Safety
 - Energy Efficiency (Don't trade direct emissions for indirect emissions)
- Talk With Your Suppliers
- Seek Out DoD/Service Expertise



Wrap-up

Acquisition Environment, Safety, and Occupational Health

➤ Mission

- ✓ Support the War Fighter

➤ Policy, Guidance, and Oversight

- ✓ Policy and Guidance to Support Mission
- ✓ Oversight to ensure Compliance

➤ Initiatives

- ✓ Updates to DoDI 5000.02 and the Defense Acquisition Guidebook
- ✓ Streamlining for ESOH in Documentation
 - Better Buying Power 3.0
 - Sustainability in Acquisition
 - HAZMAT Minimization
 - NAS 411-1
 - HFC





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BACKUP





LED Lighting on Navy Ships

ESOH, Energy, Cost Savings, Logistics, and Safety Benefits

- **LED lights do not contain hazardous materials**
 - Persons won't be exposed to chemicals if LED bulbs break
- **Improved working conditions for Sailors due to better lighting**
 - Workers can more easily see the details of our work, identify hazards, and potentially avoid mishaps
- **LED lights are more expensive up front, but last up to five times longer**
 - Shipmates spend up 80 percent less time on ladders and lifts changing out bulbs
- **LED lights use approximately 50 percent less energy than conventional florescent bulbs**
- **Since lights last longer, the Navy will be able to stock fewer bulbs in their supply rooms**



SLCA in Acquisition Programs

- **Refining “Sustainability in Acquisition” Methodology**
 - Communicating with stakeholders to identify improvements and gain support
 - Eventually SLCA could be placed on contracts
- **Programs would identify sustainability factors to be considered at the appropriate decision point**
 - Use physical, chemical, and toxicity data to make smart choices
 - Possible weighting or scoring system for alternatives
 - Estimates potential life cycle costs that need to be considered
- **Could be used to support Life Cycle cost estimating**