Updating NAS 411 and NAS 411-1 to assist with Hazardous Materials Management (Abstract 18918)

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Agenda

- Background
- Acquisition HAZMAT Policy
- Government & Industry Partnership
- The HAZMAT Target List
- Summary / Conclusion
What are Hazardous Materials?

• Hazardous materials (HAZMAT) are defined and regulated in the United States (U.S.) primarily by laws and regulations administered by the:
  – Environmental Protection Agency (EPA)
  – Occupational Safety and Health Administration (OSHA)
  – Department of Transportation (DOT)
  – U.S. Nuclear Regulatory Commission (NRC)\textsuperscript{1,2}

• A general definition for HAZMAT used by DoD in MIL-STD-882E is - \textbf{“Any item or substance that, due to its chemical, physical, toxicological, or biological nature, could cause harm to people, equipment, or the environment.”}\textsuperscript{3}

\textsuperscript{1} Not covering NRC regulated materials in this presentation

\textsuperscript{2} This definition is paraphrased from Hazardous Materials Management Institute literature
What are NAS 411 and NAS 411-1?


• Department of Defense (DoD) adopted the use of NAS 411 in 1994 for HAZMAT management in the systems acquisition process.
  – ASSIST is the official source for specifications and standards used by DoD (https://assist.dla.mil/online/start/)
  – There is still a cost to purchase NAS 411 and 411-1 (411-1 comes with sortable spreadsheet). OSD is working on a method to purchase “corporate” licenses.

• AIA created NAS 411-1, *Hazardous Materials Target List* (HMTL), in 2012 to provide a common starting point for the identification of specific requirements to limit risks and/or report HAZMAT in Products and Services, as required by contract.
  – More on this later in the presentation
New HAZMAT Management Concept

• Task 108 avoids trying to manage all known HAZMAT by focusing acquisition program office efforts on the highest priority HAZMAT.

• Task 108 requires program offices and their contractors to:
  – Agree on a finite list of HAZMAT to be actively managed for the system, and
  – Track all HAZMAT usage and assess ESOH risk in accordance with MIL-STD-882E

• Task 108 also requires the HAZMAT list to be categorized into:
  – Prohibited – program office must approve usage
  – Restricted – eliminate or minimize
  – Tracked – report locations and amounts
NAS 411-1 Transition & Development

  - DoDI 5000.02 provides a generic requirement for HAZMAT management by all acquisition programs throughout the life cycle. Requires use of MIL-STD-882E.


- NAS 411-1, *HAZMAT Target List*, published September 30, 2013
  - Sync with IAEG Aerospace and Defence Declarable Substances List (AD-DSL)


**NAS = National Aerospace Standard**

**IAEG = International Aerospace Industries Environmental Group**
DoD Acquisition ESOH Policy for HAZMAT

• Comply with legal requirements - all applicable domestic law and treaties and international agreements (ref: DoD Directive 5000.01)

• Identify HAZMAT associated with the system and for operation and support (O&S) of the system; and plan for their minimization and/or safe disposal (ref: DoD Instruction [DoDI] 5000.02)

• Document HAZMAT during system design and plan for safe demilitarization and disposal of in accordance with all legal and regulatory requirements (ref: DoDI 5000.02)

• Use the system safety methodology in MIL-STD-882E to eliminate hazards where possible and manage ESOH risks where hazards cannot be eliminated (ref: DoDI 5000.02)
  – This includes hazards associated with HAZMAT delivered in a system and those used during O&S of the system
DoD Challenges Executing Policy

• Program Office implementation of the DoDI 5000.02 acquisition HAZMAT policy varies widely.
  – Larger programs are more likely to have resources devoted to HAZMAT management activities
  – Smaller programs may not have the resources (funding and expertise) to implement effective HAZMAT management effort

• Integrating ESOH risk management and HAZMAT management are still, in many cases, stove-piped processes.
  – MIL-STD-882E risk assessment of specific HAZMAT usage not consistently applied
  – Various Service and Command level HAZMAT Target lists create challenges for industry to address the multiple HAZMAT Target Lists – drives up cost
  – HAZMAT data flow for hazard analysis and logistics reporting / management is often inconsistent and incomplete (both government and industry)
Government – Industry Partnership for More Effective HAZMAT Management

• DoD and AIA agreed in 2012 to collaborate on an effort to provide more detailed guidance for HAZMAT management.
  – The initial effort rewrote NAS 411 to align it with Task 108
  – AIA and DoD also agreed to develop a new NAS 411-1, Hazardous Materials Target List (HTML), to provide a detailed listing of HAZMAT prioritized into the three Task 108 categories - Prohibited, Restricted, and Tracked.

• The objective of NAS 411-1 is to provide DoD program offices and defense contractors with a baseline HAZMAT list to use as a starting point for implementing Task 108.

• AIA published the revised NAS 411 (REV 3) and the initial version of NAS 411-1 (HTML) in September 2013.
  – The initial HTML was limited – only chemical “Families” on Prohibited, a few dozen chemicals and/or families on Restricted, and no Tracked List.
Goal of the AIA and DoD Collaboration

- Improve effectiveness of DoD Acquisition Programs HAZMAT management, pollution prevention (P2), and ESOH risk reduction actions.
  - Meet system requirements while minimizing HAZMAT usage and reducing risk (both ESOH and programmatic)
  - Report HAZMAT delivered on the system and required for O&S phase and ultimate DEMIL/Disposal
  - Provide for efficient, accurate, and affordable flow of HAZMAT data among suppliers and customers
  - Provide tools and structure to identify the hazards and ESOH risk(s) for each use/application of HAZMAT associated with the system
  - Reduce HAZMAT management costs for Contractor and Government
  - Contribute to P2 and environmental stewardship efforts
NAS 411-1 (Rev 1) HAZMAT Target List Changes

• The updated HMTL consists of chemicals (pure substances) listed by Chemical Abstract Number (CAS) within the Prohibited, Restricted, and Tracked categories.

• The AIA, in collaboration with DoD, selected and categorized the chemicals in the HTML based upon regulatory restrictions, chemical hazards, and DoD and industry usage data.

• The HMTL was harmonized with International Aerospace Environmental Group (IAEGTM) Aerospace and Defense Declarable Substances List (AD-DSL) to the greatest extent feasible.

• Each Restricted HAZMAT (eliminate or minimize) is identified as either Priority 1, 2, or 3, based on its hazardous properties and regulatory requirements with Priority 1 potentially posing the greatest risk to people, equipment, or the environment.
What’s Not included in NAS 411-1 (Rev 1)

• NAS 411-1 (Rev 1) limits the listed HAZMAT to those relevant to aerospace and defense programs and DoD

• The HMTL does not include chemical and biological warfare materials, medical and pharmaceutical materials, medical waste and infectious materials, bulk fuels, radioactive materials, and energetic materials

  – DoD has other established programs for safely managing these materials

  – A program could add these materials to a tailored HAZMAT list in accordance with NAS 411 and MIL-STD-882E Task 108
Updated NAS 411-1 HAZMAT Totals

### NAS 411-1 HAZMAT & Chemical Categories Totals

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<thead>
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<th>Category</th>
<th>Chemical Category</th>
<th>Prohibited</th>
<th>Restricted</th>
<th>Tracked</th>
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#### October 2016 publication expected
Summary and Conclusion

• Provides a complete listing of individual Tracked HAZMAT; not just chemical families
• Revises the Prohibited and Restricted lists, adds Tracked List
• Lists only discrete chemicals by their CAS number
  – Facilitates electronic searches
• Is harmonized with the AD-DSL to the greatest extent feasible
• Is an effective tool to identify and prioritize HAZMAT management activities, as part of the overall ESOH hazard management effort
  – Provides a mutually agreed upon DoD and Industry recommended list that targets HAZMAT based on regulatory restrictions or which present ESOH hazards
  – Is a cost effective and efficient tool for management of HAZMAT risk in systems acquisition
  – Eliminates the need for each individual acquisition program to start HAZMAT management activities from scratch – saves time and money, and helps reduce risk