

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)^{1, 2}
- A general definition for HAZMAT used by DoD in MIL-STD-882E is - **“Any item or substance that, due to its chemical, physical, toxicological, or biological nature, could cause harm to people, equipment, or the environment.”**

¹ Not covering NRC regulated materials in this presentation

² This definition is paraphrased from Hazardous Materials Management Institute literature

What are NAS 411 and NAS 411-1?

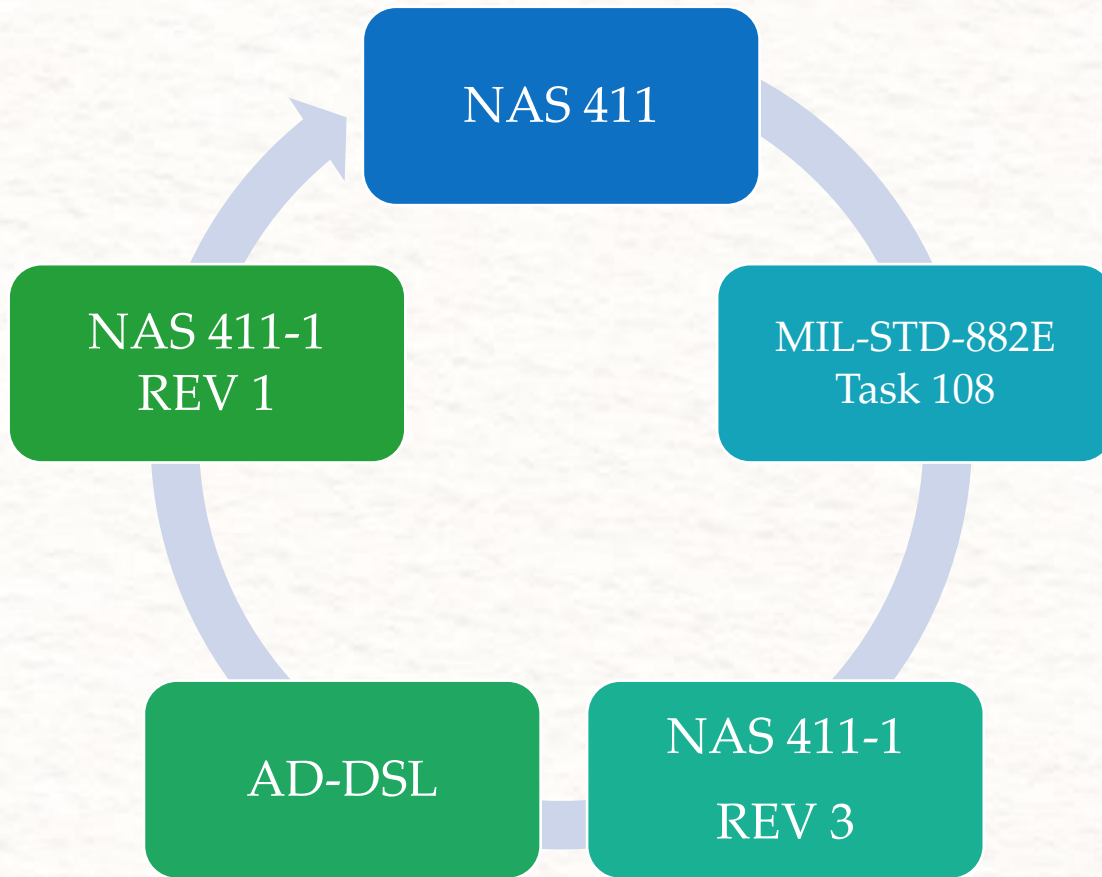
- The Aerospace Industries Association (AIA) developed National Aerospace Standard (NAS) 411, *Hazardous Materials Management Program*, (HMMP) as an industry standard addressing HAZMAT management.
- Department of Defense (DoD) adopted the use of NAS 411 in 1994 for HAZMAT management in the systems acquisition 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

MIL-STD-882E, Task 108 Hazardous Materials Management Plan

- 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



- NAS 411, *HAZMAT Management Program (HMMP)*, Rev 3, Sept 2013, is an industry standard addressing HAZMAT; adopted by DoD in 1994.
 - DoDI 5000.02 provides a generic requirement for HAZMAT management by all acquisition programs throughout the life cycle. Requires use of MIL-STD-882E.
- 2012 issuance of MIL-STD 882E included Optional Task 108, *HAZMAT Management Plan*, with more detailed guidance on how to prioritize hazardous materials for reduction or elimination during system development.
- NAS 411-1, *HAZMAT Target List*, published September 30, 2013
 - Sync with IAEG Aerospace and Defence Declarable Substances List (AD-DSL)
- NAS 411-1 Rev 1 – update expected Oct 2016

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)

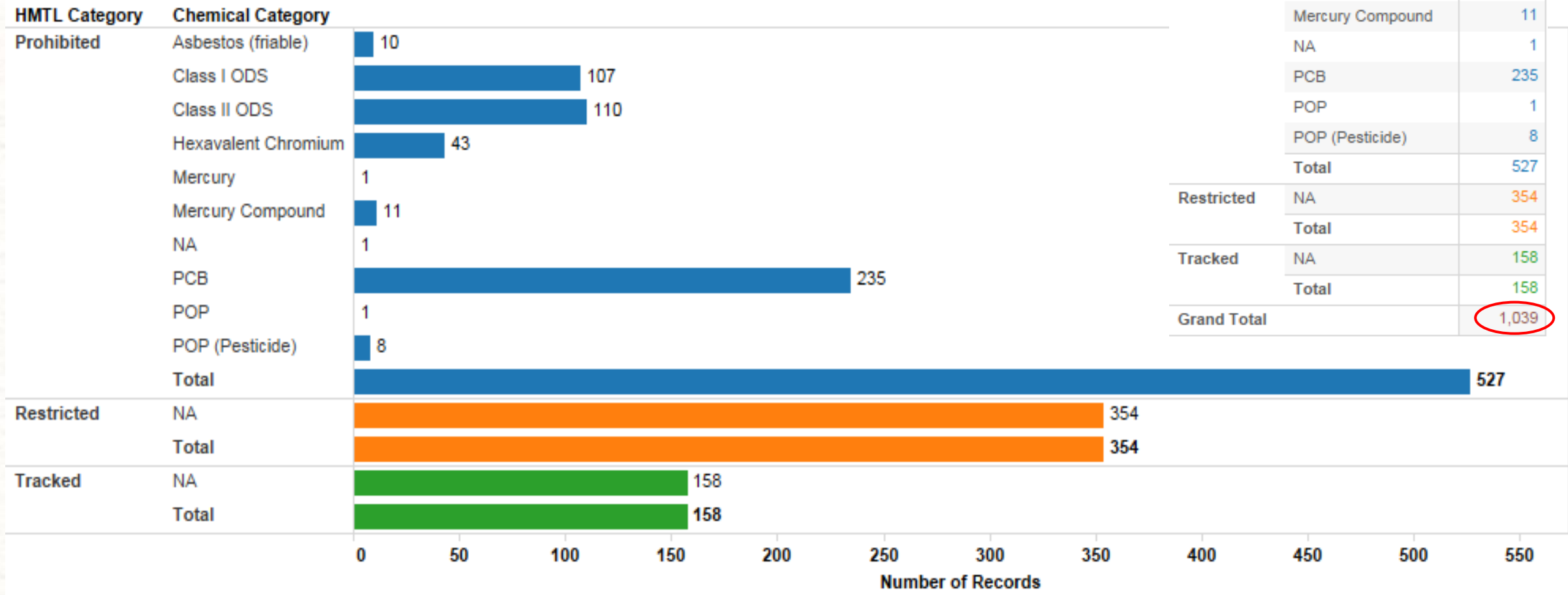
- NAS 411-1 (Rev 1) limits the listed HAZMAT to those relevant to aerospace and defense programs and DoD
- The HMTL does not include chemical and biological warfare materials, medical and pharmaceutical materials, medical waste and infectious materials, bulk fuels, radioactive materials, and energetic 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

NAS411-1 HAZMAT Totals

| HMTL Categ.. | Chemical Category | |
|--------------------|---------------------|--------------|
| Prohibited | Asbestos (friable) | 10 |
| | Class I ODS | 107 |
| | Class II ODS | 110 |
| | Hexavalent Chromium | 43 |
| | Mercury | 1 |
| | Mercury Compound | 11 |
| | NA | 1 |
| | PCB | 235 |
| | POP | 1 |
| | POP (Pesticide) | 8 |
| | Total | 527 |
| Restricted | NA | 354 |
| | Total | 354 |
| Tracked | NA | 158 |
| | Total | 158 |
| Grand Total | | 1,039 |

NAS 411-1 HAZMAT & Chemical Categories Totals



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



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