Quality Leadership Forum

Technical Standards Products Informing NASA Quality Practices

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What is a Standard?

• A document that establishes uniform engineering and technical requirements for processes, procedures, practices, and methods that have been adopted as standard, including requirements for item selection and application, or criteria for its design.

• **External** standards are generalized solutions to industry problems. **Internal** standards are specific to an organization (NASA), though they may be adapted from external standards.

• Standards become requirements for a NASA project when they are called out, subject to waiver or tailoring.
Importance of Standards to NASA

• **Objective:** Standards assure some uniformity of engineering and technical requirements within NASA programs and projects, and also between them
  – Provide a common base for interoperability
  – Capture lessons learned and new technology
  – Facilitate engineering excellence
  – (Most complex products could not be produced without established standards)

• **Scope:** Standards and specifications are applied across the different types of NASA projects
  – In-house design and development by NASA Centers
  – Partnering with industry and international organizations
  – Review of contractor proposals and supplier agreements
Current Technical Standards Issues

- Preference for (industry) voluntary consensus standards has been mandated by Executive Order (OMB A119).
- NASA OCE is now preparing a list of “core standards” that will be mandatory for the project where technically applicable, unless the Technical Authority grants a waiver.
- CxP working to select existing standards, or develop new standards, for application to CEV, CLV, etc.
- A development process for “interim standards” has been established to support Constellation Level II activities.
- **Quality assurance issues**: Development of NPR 7123 (Systems Engineering); JPL quality process improvements to meet the intent of NASA-wide NPRs.
• Each NASA Center is represented on the NASA Technical Standards Working Group (NTSWG)
• The NTSWG develops new NASA standards or adopts voluntary consensus standards (VCS) from industry
• Goals and objectives of the Technical Standards Program
  – Develop and maintain an integrated NASA Preferred Technical Standards System
  – Improve availability of technical standards for the design, development, and operation of NASA programs/projects
  – Reduce duplication of effort and improve interoperability within NASA, with industry, and internationally
  – Promote increased use and support of industry VCS
  – Enhance NASA awareness of standardization
Technical Standards Resources

  - Searchable agencywide, full-text, technical standards system (access to 100,000 standards and to 180 SDOs)
  - NASA employees and supporting contractors have full-text access to current versions of Technical Standards products used by NASA, including many industry standards (AIAA, ANSI, ASTM, ASQC, etc.)
    - **Vendor Catalogs**: WIZNET, SoluSource, Electronics Parts, ILI Metals Infobase, ILI Materials Infobase
    - Materials and Processes Technical Information System (MAPTIS)
    - NASA version of SpecsIntact
    - Federal Logistics Information System (FLIS)
    - Vendor CAGE codes (H4/H8)
    - Links to many center-specific docs at Marshall Space Flight Center and Kennedy Space Center
- Public users can download NASA-developed, DOD, Federal, and Consultative Committee for Space Data Systems (CCSDS) Technical Standards adopted by NASA.
  - Standards Update Notification System (SUNS)