



**Mission Success Starts With Safety**

# **Agency S&MA Documentation**

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*Protecting the Public, Astronauts and Pilots, the NASA Workforce, and  
High-Value Equipment and Property*



## Agenda

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- **Types and Uses of S&MA Documents**
  - Background
  - Numbering Conventions
- **S&MA Document Tree**
- **S&MA NASA Standards**
- **NASA Adopted S&MA Standards**
- **Accessing Documents**



## Types and Uses of S&MA Documents (Background)

- **Directives (NASA Policy Directives (NPD) and NASA Procedures and Guidelines (NPG))**
  - Guide the business and mission processes of the Agency
  - Implement higher level requirements such as Public Laws and Executive Orders
  - Document internal policies, procedures, and guidelines that establish the parameters for all of the work performed by NASA
- **Standards (NASA-Standards and NASA Adopted Standards)**
  - Establish uniform engineering and technical requirements for processes, procedures, practices, and methods, including requirements for selection, application, and design criteria of an item



# Types and Uses of S&MA Documents (Background)

- **Plans/Agreements (Functional Leadership Plan, Enterprise S&MA Agreements, Annual Operating Agreements)**
  - Describe operational plans and agreements for the implementation of NASA's safety and mission assurance activities across the Agency.
- **All S&MA Documents represent codified Lessons Learned**
- **General Rules of Thumb for Directives and Standards**

NASA DIRECTIVES	NASA STANDARDS
Mandatory documents with which NASA activities must comply	Generally not mandatory for NASA activities unless they have been cited as a mandatory requirement within a NASA directive
Generally not applied on contracts	Can be applied to contractors via a contract as well as to NASA activities
Superseded immediately upon issue of an updated directive at which time the old version can no longer be used	Superseded immediately upon issue of an updated standard, but old versions cited in contracts remain active until completion of the contract or a contract modification changing the revision of the standard is implemented



# Types and Uses of S&MA Documents (Numbering Conventions)

- **S&MA**

- 8700.X = NASA Policy Directive (NPD)
- 8705.X = NASA Procedures and Guidelines (NPG)
- 8709.X = NASA Technical Standard (NTS)

- **Safety\***

- 8710.X = NPD
- 8715.X = NPG
- 8719.X = NTS

### RAM

- 8720.X = NPD
- 8725.X = NPG
- 8729.X = NTS

### Quality

- 8730.X = NPD
- 8735.X = NPG
- 8739.X = NTS

\*The safety category also includes 8621 series (Mishap Reporting) directives



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## **The S&MA Document Tree**

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- <http://www.hq.nasa.gov:80/office/codeq/doctree/index.htm>



## NASA Adopted S&MA Standards

- **NASA adopts standards prepared by other developers**
  - Other Government Agencies
  - Voluntary Consensus Organizations
- **Adoption is consistent with OMB Circular A-119 "Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities"**
- **Adoption process can include Application Notes**
- **S&MA Examples**
  - ASQ Q9001 "Quality Systems Model for Quality Assurance in Design, Development, Production, Installation and Servicing"
  - IPC 6011 "Generic Performance Specification for Printed Boards"



## Accessing Documents

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- **Directives**
  - NASA On-line Directives Information System (NODIS) at <http://nodis.hq.nasa.gov/Welcome.html>
  - All signed documents are available to anyone with web access
  - Documents within the development process are available only within NASA
  - NODIS is the source for OSMA Document Tree Directive links
- **Standards**
  - NASA Standards site at <http://standards.nasa.gov/>
  - All NASA S&MA documents are available to anyone with web access
  - OSMA website is the source for NASA Standards page links for NASA S&MA Standards
  - NASA adopted Standards are available through commercial sources



## Documentation Status

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- **Document #: NPG 1000.3**
- **Document Title: NASA Organization**
- **Actionee: N/A**
- **New/Update: Update of NHB 1101.3**
- **Purpose: Reformat from NHB, consolidates NASA Program Charters (NPC). NPC 1152.66, NASA SFSP and NPC 8701.1, OEB were cancelled, content is now included in this NPG**
- **Status: Issued**
- **Expected Issue: March 2001**



## Documentation Status (continued)

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- **Document #:** NPG 8700.DRAF1
- **Document Title:** NASA Human Rating Procedures and Guidelines
- **Actionee:** M-7/Norm Starkey (202-358-4453)
- **New/Update:** New
- **Purpose:** Provide requirements for rating vehicles for human use
- **Status:** Entering NODIS review
- **Expected Issue:** Mid 2001



## Documentation Status (continued)

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- **Document #:** NPG 8705.DRAF1
- **Document Title:** Risk Management
- **Actionee:** QE/Ron Moyer (202-358-0570)
- **New/Update:** New
- **Purpose:** Supplement/expand on Risk Management requirements contained in NPG 7120.5
- **Status:** NODIS comment resolution
- **Expected Issue:** Mid 2001



## Documentation Status (continued)

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- **Document #:** NPD 8709.DRAF1
- **Document Title:** SMA Policy for ELVs, Spacecraft, and Instruments
- **Actionee:** QE/Roger Mielec (202-358-0575)
- **New/Update:** New
- **Purpose:** Provide SMA Policy
- **Status:** In NODIS comment resolution
- **Expected Issue:** Mid-2001



## Documentation Status (continued)

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- **Document #:** NPD 8730.1A
- **Document Title:** Metrology/Calibration
- **Actionee:** QS/Jim Lloyd (202-358-0557)
- **New/Update:** Update
- **Purpose:** To include citation for ISO 17025, Requirements for the Competence of Test and Calibration Laboratories
- **Status:** In NODIS review
- **Expected Issue:** Mid 2001



## Documentation Status (continued)

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- **Document #:** NPD 8730.DRAF6/NPG 8730.DRAF1
- **Document Title:** NASA Engineering and Quality Audits (NEQA)
- **Actionee:** QS/Claude Smith (202-358-1675)
- **New/Update:** New
- **Purpose:** Describe implementation of Engineering and quality audits across the Agency
- **Status:** In Code QS review cycle, Center SMA review in May
- **Expected Issue:** Early 2002



## Documentation Status (continued)

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- **Document #:** NPD 8730.DRAF7/NPG8730.DRAF2
- **Document Title:** Software IV&V
- **Actionee:** QS/John Lemke (202-358-0567)
- **New/Update:** New
- **Purpose:** Establish policy and direction for the implementation of IV&V on NASA programs/projects
- **Status:** NPD preparing for release to NODIS, NPG in NODIS review
- **Expected Issue:** Mid 2001



## Documentation Status *(continued)*

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- **Document #:** American National Standards Institute (ANSI)/ESD S.20.20-1999
- **Document Title:** Electrostatic Discharge Standard (ESD)
- **Actionee:** QS/Tom Whitmeyer (202-358-2228)
- **New/Update:** Agency adoption
- **Purpose:** Provide standard ESD practices
- **Status:** Formal NASA adoption process underway (Once adopted NASA-STD-8739.7 will be cancelled)
- **Expected Issue:** Agency Adoption expected mid-2001



## Documentation Status (continued)

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- **Document #:** American Society for Testing and Materials (ASTM) Manual 36
- **Document Title:** Oxygen Safety Standard
- **Actionee:** QS/Claude Smith (202-358-1675)
- **New/Update:** Agency adoption
- **Purpose:** Provide information concerning safe oxygen practices
- **Status:** Formal NASA adoption process underway (Once adopted NSS 1740.15 will be cancelled)
- **Expected Issue:** Agency Adoption expected mid-2001



## Documentation Status (continued)

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- **Document #:** NPD 8621.1H
- **Document Title:** NASA Mishap Reporting and Investigating Policy
- **Actionee:** QS/Wayne Frazier (202-358-0588)
- **New/Update:** Update
- **Purpose:** Update to make the document consistent with NPG 8621.1
- **Status:** Center review to be initiated with a target for completion of May 2001
- **Expected Issue:** Early 2002



## Documentation Status (continued)

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- **Document #:** NPD 8700.1A
- **Document Title:** NASA Policy for Safety and Mission Success
- **Actionee:** QS/Wayne Frazier (202-358-0588)
- **New/Update:** Update
- **Purpose:** Update to reflect NIAT results and to better incorporate Risk Management, Process Based Mission Assurance and Knowledge Management.
- **Status:** To be discussed at the SMA Directors' meeting
- **Expected Issue:** End of 2001



## Documentation Status (continued)

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- **Document #:** NPD 8700.X
- **Document Title:** Probabilistic Risk Assessment (PRA)
- **Actionee:** QE/Michael Stamatelatos (202-358-1668)
- **New/Update:** New
- **Purpose:** Provide policy on when to apply PRA
- **Status:** Informal coordination of draft
- **Expected Issue:** Enter NODIS mid 2001



## Documentation Status (continued)

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- **Document #:** NPD 8700.X/NPG 8705.X
- **Document Title:** SMA Requirements for Autonomous Flight-Controlled Unmanned Hypersonic Experimental Vehicles (UHEV)
- **Actionee:** QS/John Lyver (202-358-1155)
- **New/Update:** New
- **Purpose:** First document to provide requirements for Certification of Flight Readiness at Agency level
- **Status:** SMA Directors review
- **Expected Issue:** End of 2001



## Documentation Status (continued)

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- **Document #: NPG 8705.X**
- **Document Title: NASA's SMA Roles and Responsibilities for ELVs**
- **Actionee: QE/Pat Martin (202-358-0417)**
- **New/Update: New**
- **Purpose: Replaces NASA-STD-8709.2**
- **Status: Being drafted**
- **Expected Issue: Late 2001**



## Documentation Status (continued)

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- **Document #: NPG 8705.X**
- **Document Title: NASA SMA Roles and Responsibilities for Spacecraft and Instruments**
- **Actionee: QE/Pat Martin (202-358-0417)**
- **New/Update: New**
- **Purpose: Provide minimum NASA SMA insight requirements for NASA spacecraft and instruments**
- **Status: Initial draft prepared**
- **Expected Issue: Late 2001**



## Documentation Status *(continued)*

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- **Document #:** NPG 8705.X
- **Document Title:** Space/Earth Science Flight Program SMA Guidance
- **Actionee:** QE/Steve Newman (202-358-1408)
- **New/Update:** New
- **Purpose:** Procedures and guidelines for getting SMA requirements into contracts, AOs, Grants, etc. (Resulted from Code Q assessments of Code S/Y Project Formulation)
- **Status:** Initial discussions conducted with Codes S and Y
- **Expected Issue:** 2002



## Documentation Status (continued)

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- **Document #:** NPG 8705.X
- **Document Title:** NASA SMA Processes for Human Spaceflight
- **Actionee:** QE/Richard Patrican (202-358-0569)
- **New/Update:** New
- **Purpose:** Provide more effective and efficient consolidated process requirements for Human Space Flight
- **Status:** AA for SMA issuing document under an Interim Policy Letter while the formal NPG is developed.
- **Expected Issue:** Interim Policy Letter March 01. NPG to NODIS late 2001.



## Documentation Status (continued)

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- **Document #: NASA-STD-8709.X**
- **Document Title: Science Mission Design Criteria**
- **Actionee: QE/Pat Martin (202-358-0417)**
- **New/Update: New**
- **Purpose: Provide guidance for classification and application of SMA requirements**
- **Status: Initial drafting**
- **Expected Issue: Early 2002**



## Documentation Status (continued)

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- **Document #:** NPG 8715.X
- **Document Title:** Payload Safety Requirements
- **Actionee:** QS/John Lyver (202-358-1155)
- **New/Update:** New but will replace NASA-STD-8719.8
- **Purpose:** Standardize payload safety requirements across the Agency
- **Status:** KSC Payload Safety Team reviewing draft
- **Expected Issue:** Early 2002



## Documentation Status (continued)

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- **Document #:** NASA-STD-8719.9
- **Document Title:** Lifting Devices Standard
- **Actionee:** QS/Art Lee (202-358-4670)
- **New/Update:** Update and reformat of NSS/GO-1740.9
- **Purpose:** To incorporate needed changes for cranes, slings and to add mobile aerial platforms and forklifts
- **Status:** Working group met in February to resolve document revision
- **Expected Issue:** Early 2002



## Documentation Status (continued)

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- **Document #:** AIAA S-081
- **Document Title:** Aerospace Pressure Vessel Standard for Composite Overwrapped Vessels
- **Actionee:** QS/Wayne Frazier (202-358-0588)
- **New/Update:** New with potential Agency adoption
- **Purpose:** Standard practices for Overwrapped Pressure Vessels
- **Status:** In AIAA approval process
- **Expected Issue:** Mid 2001



## Documentation Status (continued)

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- **Document #: AIAA S-080**
- **Document Title: Aerospace Pressure Vessel Standard for Metallic Pressure Vessels and Components**
- **Actionee: QS/Wayne Frazier (202-358-0588)**
- **New/Update: Update**
- **Purpose: Replace MIL-STD-1522B and NASA Safety Standards 1740.1 and 1740.4**
- **Status: AIAA approval process**
- **Expected Issue: Mid 2001**