



# NASA Procedural Requirements

**COMPLIANCE IS MANDATORY**

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## **Subject: Safety and Mission Assurance Audits, Reviews, and Assessments**

**Responsible Office: Office of Safety and Mission Assurance**

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## **Chapter 4. Safety and Mission Assurance Readiness Review (SMARR)**

### **4.1 Objective**

4.1.1 The SMARR is a review held to prepare SMA management to participate in program or project management pre-operations or major milestone review forums. The SMARR provides the knowledge, visibility, and understanding necessary for SMA managers to concur or nonconcur in program decisions to proceed.

4.1.2 SMARRs can be Headquarters-led or Center-led. The Headquarters-led SMARR is held for the Chief Safety and Mission Assurance Officer. Center-led SMARRs are conducted for Center SMA management by the cognizant Center SMA organization.

4.1.3 SMARRs are conducted for Human Space Flight, Expendable Launch Vehicle (which typically would not include sounding rockets and balloons), and selected Experimental Aerospace Vehicle flights. In addition, the Chief Safety and Mission Assurance Officer may request a SMARR (either Headquarters-led or Center-led) prior to other SMA-critical program or project activities, including test readiness reviews, design certification reviews, and extravehicular activities.

4.1.4 The SMARR is designed to:

(1) review and affirm that assurance processes and requirements have been implemented over the life of the program, including review of the program-developed Assurance Process Map and Matrix,

(2) verify compliance with the applicable BRS,

(3) provide adequate knowledge and visibility for senior SMA managers to understand the managed risks associated with the safety and mission success of program launches, operational stages, or selected critical tests, utilizing input from cognizant program and Center-based safety and reliability review panels (e.g., ground safety, payload safety, range safety, facility safety),

(4) examine mission preparation status, open work issues and concerns, and assess overall systems readiness, and

(5) provide an SMA position on whether to concur or nonconcur in proceeding with the event/operation in question.

4.1.5 Data presented at the Headquarters-led SMARR is developed by the program, cognizant Center SMA organization(s), the Review and Assessment Division IFO SMA Audits, PA&R process activities, other Independent Assessment groups (e.g., NESC, IV&V Facility), the applicable Safety Review Panels, and any individuals or organizations representing minority or dissenting opinions.

4.1.6 A record of each Headquarters SMARR shall be prepared and maintained by the OSMA Review and Assessment Division for six years after mission completion (Requirement).

### **4.2 SMARR Roles and Responsibilities**

4.2.1 The Agency Associate Administrator shall:

4.2.1.1 Ensure that Centers support the SMARR processes described in this document (Requirement). 4.2.2 Associate Administrators for Mission Directorates shall:

4.2.2.1 Ensure that programs and projects within the Mission Directorate support the SMARR requirements described in this document (Requirement).

4.2.3 The Chief Safety and Mission Assurance Officer shall:

4.2.3.1 Direct the conduct of a SMARR for any high-risk program or project activity requiring Mission Directorate-level or higher decision to proceed, and, as necessary, to ensure the safety and mission success of program or project activities (Requirement).

4.2.3.2 Chair each Headquarters-led SMARR and conduct a poll of selected SMARR participants for a recommendation to proceed. (Requirement).

4.2.4 Center Directors shall:

4.2.4.1 Provide the logistic and resource support required for successful execution of the Headquarters- and Center-led SMARR activities (Requirement).

4.2.5 Center SMA Directors shall:

4.2.5.1 Participate in the Headquarters-led SMARR process for each program/project applicable to their Center (Requirement).

4.2.5.2 Direct the implementation of a Center-led SMARR process for any major milestone event or program line management operational review chaired below the Agency Directorate level in which the Center SMA organization is asked to concur/nonconcur and capitalize on a Headquarters-led SMARR to meet the intent of the Center-led SMARR, if applicable (Requirement).

4.2.5.3 Chair each Center-led SMARR and conduct a poll of selected SMARR participants for a recommendation to proceed (Requirement).

4.2.5.4 Include an assurance process analysis and an SMA residual risk-centric approach to assessing program/project readiness prior to a critical milestone in Center-led SMARRs.

4.2.5.5 Ensure that the basic elements of a Center-led SMARR, at a minimum, address the Headquarters-led SMARR elements and, to the extent possible, parallel Headquarters-led SMARR residual risk reporting formats (Requirement).

4.2.5.6 Coordinate with program/project management and Center procurement to ensure that contracts provide for adequate contractor support of Headquarters-led and Center-led SMARR activities (Requirement).

4.2.6 Program/Project Managers shall:

4.2.6.1 Provide the necessary logistics and resources required to support the preparation and conduct of Headquarters-led or Center-led SMARRs (Requirement).

4.2.6.2 Coordinate with Center SMA and Center procurement to ensure that contracts provide for adequate contractor support of Headquarters-led and Center-led SMARR activities (Requirement).

4.2.7 SMA Managers reporting (matrix or direct) to the Program/Project Manager shall:

4.2.7.1 Help to identify all independent organizations which have assessed portions of the program or project (Requirement).

4.2.7.2 Compile the program/project SMARR material, including the program's assessment of residual safety and mission success risk related to the upcoming milestone, identifying risk consequence and likelihood with supporting rationale and uncertainty associated with estimated likelihood (Requirement).

4.2.7.3 Coordinate the presentation of the Center and program/project SMARR material to the Chief Safety and Mission Assurance Officer (Requirement).

4.2.7.4 Coordinate within the program/project and support Headquarters-led and Center-led SMARR preparation meetings, as required (Requirement).

4.2.7.5 Participate in SMARR polling as described in paragraphs 4.2.3.2. and 4.2.6.3 (Requirement).

4.2.8 Other Independent Assessment organizations shall:

Note: This includes, but is not limited to, IV&V Facility and NESC.

4.2.8.1 Identify program/project assessments conducted by their respective organizations, summarize, and provide them to the OSMA Review and Assessment Division to ensure that the Chief Safety and Mission Assurance Officer has all relevant data at the SMARR and to avoid duplication of effort on the part of other independent assessment organizations (Requirement).

4.2.8.2 Identify any issues or SMA residual risks related to their respective assessments (Requirement).

4.2.8.3 Identify any areas where the findings of the independent assessments differ from the program/project assessment (Requirement).

4.2.8.4 Participate, as applicable, in SMARR polling described in paragraph 4.2.3.2 (Requirement).

4.2.8.5 Complete SMARR action items as assigned (Requirement).

4.2.9 The OSMA Review and Assessment Division SMARR Manager shall:

4.2.9.1 Coordinate with the OSMA Mission Manager, Center-based SMA managers, and independent assessment organizations (e.g., IV&V Facility, NESC) to identify participants for the review (Requirement).

4.2.9.2 Coordinate with the OSMA Mission Manager, Center-based SMA managers, and independent assessment organizations (e.g., IV&V Facility, NESC) to establish an appropriate schedule and agenda for the upcoming SMARR (Requirement).

4.2.9.3 Coordinate with the program/project SMA Managers to establish the team members for the SMARR polling group in coordination with the Chief Safety and Mission Assurance Officer (Requirement).

4.2.9.4 Maintain and update, based on operational experience, detailed SMARR process documentation and work instructions (Requirement).

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