

## REVISION A



# Management of the Safety and Mission Success Review (SMSR) Process

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### DOCUMENT HISTORY LOG

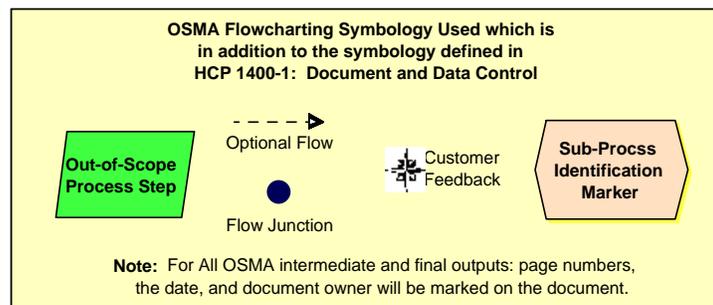
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## 1. Purpose

The purpose of this Office of Safety and Mission Assurance (OSMA) Headquarters Office Work Instruction (HOWI) is to document the process of how OSMA prepares for and conducts Safety and Mission Success Reviews (SMSRs) and associated briefings and actions. The SMSR process prepares Safety and Mission Assurance (SMA) and engineering management to participate in program or project management pre-operations or major milestone review forums. SMSRs are typically held for all Human Space Flight (HSF), Expendable Launch Vehicles (ELV) (which typically does not include sounding rockets and balloons), selected Experimental Aerospace Vehicles (EAV), and other NASA program and project activities that require Mission Directorate-level or higher decision to proceed, and as otherwise necessary to ensure the safety and mission success of program or project activities. This HOWI also specifies the Quality Records associated with the process.

The SMSR is a review held prior to selected program or project activities for the Chief, SMA and Chief Engineer. The SMSR provides the Chief SMA and Chief Engineer with the knowledge they need to 1) sign a Certificate of Flight Readiness (CoFR), and/or 2) give a program's Mission Directorate Associate Administrator an assessment of the mission safety and mission success risks prior to major program/project milestone reviews. The SMSR prepares the Chief SMA and Chief Engineer by providing assurance that all required SMA activities and assurance processes have been performed, that the Baseline Requirements Set (BRS) has been met, and that the program/project has not exceeded the acceptable risk envelope. The scope of a SMSR typically includes an examination of mission preparation status, open work issues and concerns, and an assessment of overall systems readiness, as well as a review of any relevant independent assessments and minority report concerns. SMSRs conclude with a readiness poll to help the Chief SMA and Chief Engineer determine a position on whether to concur or nonconcur in proceeding with the event/operation under review. A SMSR may be conducted by a Center SMA Director for program/project readiness reviews that are held at the Center level; this HOWI can serve as a guide for the conduct of those SMSRs as well.

This HOWI supersedes and cancels HOWI 8700-GC009: Coordinating OSMA Participation in the Space Shuttle CoFR Process and HOWI 8700-GC010: Coordinating SMA Participation in the International Space Station CoFR Process.

## 2. Scope and Applicability

This HOWI is applicable to the OSMA and the Office of Chief Engineer, as well as NASA Mission and Program/Project Management staff as required.

## 3. Definitions

- 3.1. BRS: Baseline Requirements Set
- 3.2. CoFR: Certificate of Flight Readiness
- 3.3. EAV: Experimental Aerospace Vehicle
- 3.4. ELV: Expendable Launch Vehicle
- 3.5. FRR: Flight Readiness Review

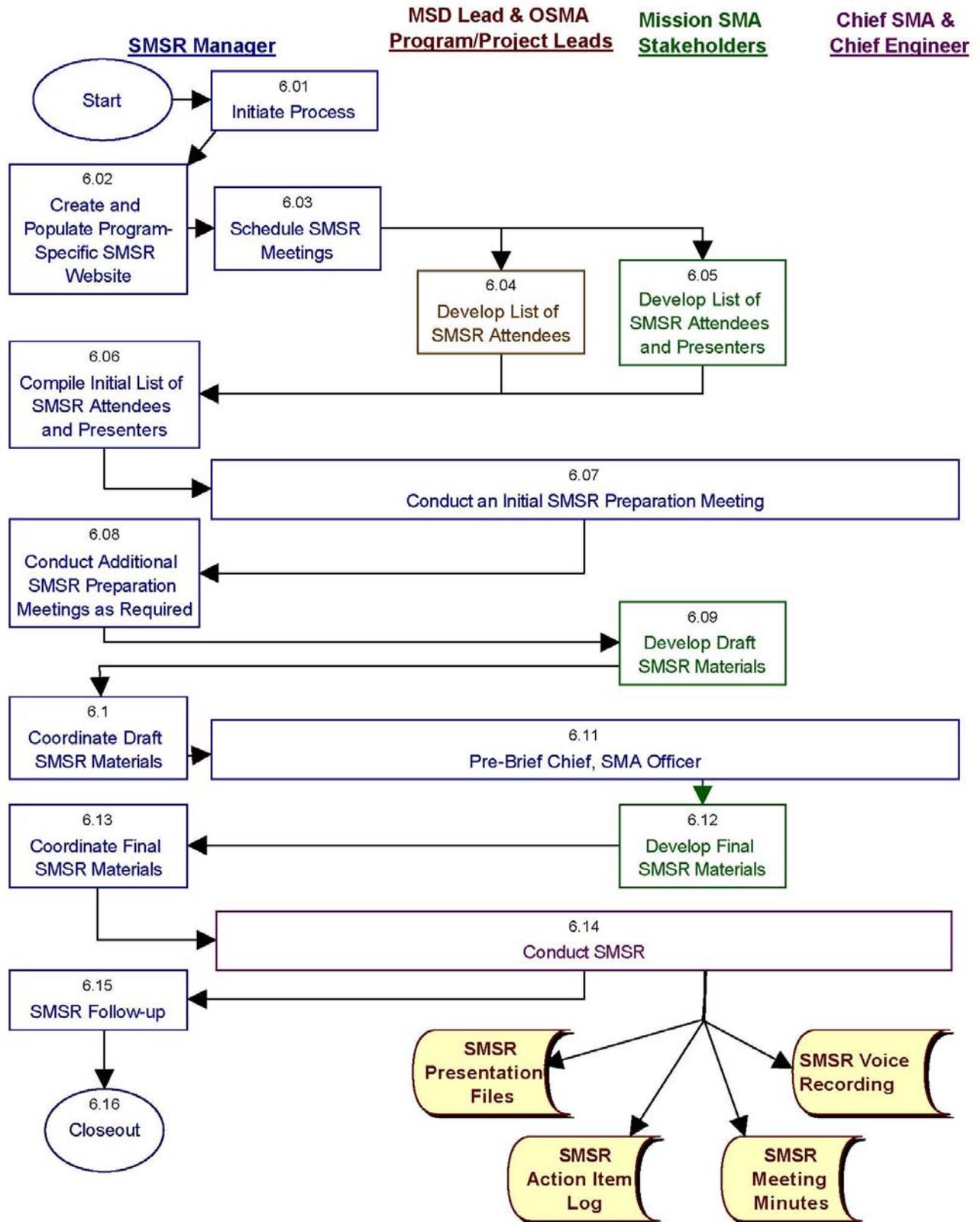
- 3.6. HOWI: Headquarters Office Work Instruction
- 3.7. HSF: Human Space Flight
- 3.8. MSD: Mission Support Division
- 3.9. OSMA: Office of Safety and Mission Assurance
- 3.10. QMS: Quality Management System
- 3.11. SARD: Safety and Assurance Requirements Division
- 3.12. SMA: Safety and Mission Assurance
- 3.13. SMSR: Safety and Mission Success Review

#### **4. Reference Documents**

The documents listed in this section are used as reference materials for performing the processes covered by the Quality Management System (QMS). Since all NASA Headquarters Level 1 (QMS Manual) and Level 2 (Headquarters Common Processes) documents are applicable to the QMS, they need not be listed in this section unless specifically referenced in this OSMA HOWI.

- 4.1. NPD 8610.24: *Launch Services Program (LSP) Pre-launch Readiness Reviews*
- 4.2. NPR 8715.3: *NASA General Safety Program Requirements*
- 4.3. NPR 8715.7: *Expendable Launch Vehicle Payload Safety Program*
- 4.4. OSMA-SMSR-05-01: *Safety and Mission Success Review (SMSR) Process*
- 4.5. NSTS 22778: *Space Shuttle Commit-To-Flight Assessment Review Process Operating Plan*
- 4.6. SSP 50108: *Certification of Flight Readiness Process Document, International Space Station Program*
- 4.7. NPR 8705.6: *Safety and Mission Assurance Audits, Reviews, and Assessments*

## 5. Flowchart



## 6. Procedure

### 6.01 SMSR Manager                      Initiate Process:

SMSRs are performed at the request of, and for the benefit of, the Chief SMA and Chief Engineer and are required for all HSF and most ELV launches and other SMA-critical programs, projects, and activities as determined by the Chief SMA or Chief Engineer. SMSRs can be convened for the following reasons:

- Mission launch (e.g.; FRR preparation)
- Major milestone in a program (e.g.; Nuclear Launch Safety Approval)
- Reentry (e.g.; Stardust)
- Major problem in program (e.g.; Shuttle return to flight)

The SMSR Manager is a member of the MSD staff.

### 6.02 SMSR Manager                      Create and Populate Program-Specific SMSR Website:

Once the need for a SMSR has been identified, the SMSR Manager oversees the creation of a placeholder for the specifically-named program/project SMSR on the SMSR website and invites program/project members to support SMSR planning. The site is initially populated with meeting schedules, agendas, SMSR templates, and other helpful data.

### 6.03 SMSR Manager                      Schedule SMSR Meetings:

Once the website has been established, the SMSR Manager oversees the scheduling of a SMSR preparation meeting, known as the “Pre-SMSR” or “Lorraine,” any additional required preparation meetings, and the SMSR. The SMSR Manager oversees the coordination with the Mission Manager, the Chief SMA’s office and the Chief Engineer’s office to make sure that the SMSR is scheduled for a date and time convenient to the Chief SMA and Chief Engineer. The SMSR Manager also ensures that a conference room for the preparation meetings and SMSR is reserved and that it includes teleconferencing and projection capabilities.

### 6.04 MSD Program/Project Leads      Develop List of SMSR Attendees

Upon notification by the SMSR Manager, the cognizant MSD Program/Project Lead develops a list of personnel they believe should be invited to attend the SMSR and/or associated preparation meetings and gives it to the SMSR Manager.

### 6.05 Mission SMA Stakeholders      Develop List of SMSR Attendees and Presenters

The various SMA entities with a stake in the mission to be reviewed in the SMSR develop a list of attendees from their organizations for the SMSR and associated preparation meeting(s). These attendees should include representatives from the Program and Center SMA and engineering communities, as well as other mission SMA stakeholders to include individuals or organizations which have performed assessments related to the upcoming activity. They also identify which of the attendees will be presenting at the SMSR. These lists are to be provided to the SMSR Manager.

- 6.06 SMSR Manager                      Compile Initial List of SMSR Attendees and Presenters:  
The SMSR Manager ensures the compilation of the lists developed by the MSD and the SMA Mission Stakeholders and coordinates the distribution of an e-mail announcement of the SMSR preparation meeting(s) and the SMSR. The SMSR Manager also ensures that all required individuals have access to the SMSR website.
- 6.07 SMSR Manager, MSD Lead, OSMA Program/Project Leads, Mission SMA Stakeholders, and Mission SMA Lead; Conduct an Initial SMSR Preparation Meeting:  
The SMSR Manager conducts a SMSR preparation meeting(s) with the Program SMA Manager, MSD Program/Project Leads, and other SMA and engineering stakeholders. The purpose of the initial SMSR preparation meeting is to 1) explain the SMSR process for those who are not familiar with it, 2) review the SMSR presentation template, 3) identify any special topics, significant residual risks, or necessary status briefings, 4) confirm the identification of presenters and attendees, 5) choose an appropriate schedule and agenda for the upcoming SMSR, and 6) schedule additional SMSR preparation meetings if necessary.
- 6.08 SMSR Manager                      Conduct Additional SMSR Preparation Meetings as Required:
- 6.09 Mission SMA Stakeholders      Develop Draft SMSR Materials  
The Mission SMA Stakeholders, using the templates provided on the SMSR website, develop the draft SMSR materials and provide them (by way of posting to the SMSR website) to the SMSR Manager in accordance with the delivery date established in the SMSR preparation meeting (typically seven business days before the SMSR).
- 6.10 SMSR Manager                      Coordinate Draft SMSR Materials:  
The SMSR Manager oversees the review of the draft SMSR materials provided by the Mission SMA Stakeholders for acceptability and provides any comments or suggestions to the Mission SMA Stakeholders or initiates action/activity to address any deficiencies in materials.
- 6.11 SMSR Manager, MSD Lead and OSMA Program/Project Leads                      Pre-Brief Chief SMA  
The SMSR Manager and appropriate MSD representatives brief the Chief SMA on the mission staffing map and other materials that will be presented at the upcoming SMSR.
- 6.12 Mission SMA Stakeholders      Develop/Refine Final SMSR Materials  
The Mission SMA Stakeholders make any required updates to the draft SMSR materials and provide them (by way of posting to the SMSR website) to the SMSR Manager in accordance with the delivery date established in the SMSR preparation meeting (typically two business days before the SMSR).
- 6.13 SMSR Manager                      Coordinate Final SMSR Materials:  
The SMSR Manager oversees the assembly of the final presentation materials provided by the Mission SMA Stakeholders and other presenters into a comprehensive SMSR presentation package which is posted to the SMSR website and made available to the SMSR participants.

6.14 SMSR Manager, MSD Lead and OSMA Program/Projects Leads, Mission SMA Stakeholders, Chief SMA, and Chief Engineer Conduct SMSR:

The SMSR is chaired by the Chief SMA and co-chaired by the Chief Engineer, with the SMSR Manager typically serving as lead host for the meeting, facilitating logistics as needed, and serving as counsel to the Chief SMA and Chief Engineer during the review. Representatives from the OSMA MSD, SARD, program/project/Center SMA and engineering staff and independent review and assessment staff are responsible for participating in a readiness poll at the end of the SMSR, which represents the collective opinion of each on whether NASA should continue to proceed with the activity under review.

6.15 SMSR Manager SMSR Follow-up:

Throughout the preparation and presentation of the SMSR, the SMSR Manager is responsible for overseeing the recording and tracking of action items. When all action items have been closed, the SMSR Manager ensures the creation of two identical SMSR compact disks containing a copy of the final SMSR Presentations, the SMSR voice recording, SMSR attendance and meeting minutes, and a summary of closed action items. One copy of the compact disk is kept by the SMSR Manager in a locked storage cabinet, and the second is stored by the SMSR contractor in a remote location. The SMSR action item log, meeting minutes, and presentation files remain posted on the SMSR website. Archived SMSR records are maintained for a minimum of six years.

6.16 SMSR Manager Close-out:

The process is complete.

## 7. Quality Records

Record ID	Owner	Location	Media Electronic /hardcopy	Schedule Number & Item Number	Retention & Disposition
SMSR Action Item Log	SMSR Manager	SMSR Website and CD in MSD Files	Electronic	Schedule: 5 Item: 29	Send to FRC 1 year after mission complete then destroy 6 years after mission complete
SMSR Meeting Minutes	SMSR Manager	SMSR Website and CD in MSD Files	Electronic	Schedule: 5 Item: 29	Send to FRC 1 year after mission complete then destroy 6 years after mission complete
SMSR Presentation Files	SMSR Manager	SMSR Website <sup>1</sup> and CD in MSD Files	Electronic	Schedule: 5 Item: 29	Send to FRC 1 year after mission complete then destroy 6 years after mission complete
SMSR Voice Recording	SMSR Manager	SMSR CD in MSD Files	Electronic	Schedule: 5 Item: 29	Send to FRC 1 year after mission complete then destroy 6 years after mission complete

<sup>1</sup> <http://secureworkgroups.grc.nasa.gov/osma-smarr/>