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OFFICE OF SAFETY AND MISSION ASSURANCE

SPACE FLIGHT OPERATIONS

CONTINGENCY ACTION PLAN

(QE-CAP-99-01)

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CONTINGENCY ACTION PLAN

Prepared by
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1.0 INTRODUCTION

In accordance with NASA Handbook 1101.3, "The NASA Organization, Office of Safety and Mission Assurance (OSMA), Code Q," the Associate Administrator for the Office of Safety and Mission Assurance (AA/OSMA) is responsible for:

"Advising NASA management on significant safety and mission assurance issues; overseeing prompt investigation and closure for NASA mishap findings and recommendations."

Notification/investigation of all NASA mishaps, incidents, or close calls shall meet the requirements established in NPD 8621.1, "Mishap Reporting and Investigating Policy." This OSMA Space Flight Operations Contingency Action Plan structures an approach for mishaps, incidents, or close calls meeting predetermined severity criteria defined by the Office of Space Flight (OSF) Space Flight Operations (SFO) Contingency Action Plan. The criteria for determining an SFO contingency and the declaration of an actual SFO contingency are the responsibility of the AA Office of Space Flight (AA/OSF).

1.1 PURPOSE

The purpose of this plan is to define OSMA real-time support actions in the event that a Type A Mishap or Type B Mishap, any high visibility mission failure, or any high visibility close call is an SFO probable contingency or is declared an SFO contingency by the AA/OSF. This plan will be implemented in concert with all of NASA Headquarters and Center Contingency Action Plans. This plan is consistent with NPD 8621.1.

1.2 SCOPE

This plan applies to OSF SFO contingencies occurring worldwide and at any time. Specific segments of the programs covered by this plan includes, but not limited to, Space Shuttle processing and launch, Space Shuttle and Station Operations, Ground Processing of Space Shuttle, Space Station, Space Communications, ELV Launch Services, ELV Payloads and International launch sites activities. This plan also provides OSMA supplemental guidelines for actions necessary to satisfy SFO contingency responsibilities found in the "Office of Space Flight, Space Flight Operations Contingency Action Plan."

1.3 APPLICABILITY

This plan applies specifically to NASA Headquarters OSMA personnel, wherever located, and to Center Safety and Mission Assurance (SMA) personnel (dotted-line), in response to an SFO contingency.

1.4 REFERENCES

- A. NHB 1101.3, "The NASA Organization."
- B. NPD 8621.1 "Mishap Reporting and Investigating Policy."
- C. NPG 8621.X (Draft) "NASA Procedures and Guidelines for Mishap Reporting Investigating and Record keeping."
- D. NPD 8700.1, "NASA Policy for Safety and Mission Success."
- E. Office of Space Flight, Space Flight Operations Contingency Action Plan.

- F. NSTS 07700, Volume VIII, Appendix R, Revision D.
- G. SSP 50190, Contingency Action Plan for ISS.

1.5 EFFECTIVITY

This plan is effective upon approval and will remain in effect until canceled by the AA/OSMA.

1.6 CHANGES

The Director, Enterprise Safety and Mission Assurance Division (Code QE), OSMA, is responsible for maintaining the OSMA SFO Contingency Action Plan. Requests for changes should be forwarded in writing to NASA Headquarters, Code QE, for review and coordination with appropriate organizations.

2.0 DEFINITION/DETERMINATION OF A SFO CONTINGENCY

2.1 DEFINITION OF A SFO CONTINGENCY

The following definition is from the Office of Space Flight “Space Flight Operations Contingency Action Plan.”

Space Flight Operations (SFO) Contingency: "For the purpose of this plan, a Space Flight Operations contingency is defined as any mishap, mission failure, incident, or high visibility close call that causes or may cause (for close calls) a major impact to space flight operations or prevents accomplishment of a primary mission objective involving OSF-controlled personnel, hardware, support equipment, or facilities or any personnel, hardware, software, equipment, or facilities that have been integrated with OSF-controlled flight-related systems. An SFO contingency can involve a mishap to any OSF space operations or development program, including suspected contingency situations at contractor facilities and/or government facilities operated under contract.”

2.2 RESPONSIBILITY FOR DECLARATION OF A SFO CONTINGENCY

The AA/OSF or designated representative will make a contingency declaration, based on the recommendation of the reporting organization, as to whether an actual or probable operations mishap, mission failure, or close call does in fact constitute an SFO contingency.

3.0 CONTINGENCY NOTIFICATION/REACTION SEQUENCE

In the event of a mishap or close call, notification will be made to the AA/OSF and other predetermined NASA personnel, including OSMA representatives. Notification will follow the notice sequences established in the OSF and OSMA Contingency Action Plans. (See Figure 3-1.)

Upon notification of a operations mishap, mission failure, incident, or close call, the AA/OSF will make a determination if the reported situation does in fact constitute a “declared” SFO contingency. If the AA/OSF declares that a contingency has occurred, then the AA/OSF may implement the Mishap Response Teleconference. The teleconference will establish an investigative course of action for the contingency. This investigation will be conducted in compliance with NPD 8621.1.

3.1 OSMA SFO CONTINGENCY NOTIFICATION

If a mishap or close call occurs or the AA/OSF declares a contingency, predetermined personnel shall be notified of the occurrence and details of the contingency in order to provide real-time managerial resource support. Within the NASA structure, notification trees will exist at each Center and Headquarters to alert the designated people in the minimum amount of time. These notification structures are individually identified within the Contingency Action Plans (See Annexes 1 through 4) for the various NASA organizations.

Notification will include all pertinent supporting facts and a description of the actions taken. Figure 3-1 presents the nominal sequence in which OSMA contingency response activities will be conducted. Annexes 1 through 4 are baselines of the OSMA Management Contingency Notification List. The tables list the order in which persons are to be notified for an SFO mission-related and non-mission-related contingency:

- A. Pre-launch (L-2) through crew egress after landing (Annex 1),
- B. Non-mission related events (Annex 2), or
- C. On-orbit Assembly and Operations (Annex 3), or
- D. ELV and NASA ELV Payload Deployment and Operations (Annex 4).

OSMA may initiate the OSMA Contingency Notification/Reaction Sequence, Figure 3-1, and the OSMA Management Contingency Notification List; Annexes 1 through 4; while OSF is in the process of making a contingency determination.

Per the requirements of NPD 8621.1, the following statement has been included with regard to a reportable mishap and to notification of the OSMA Director, Safety and Risk Management. An OSF contingency, in all cases, is a reportable mishap:

"When local Installation and Program Directors/Managers are notified of reportable mishaps by an office or source other than safety personnel, the Installation/Program Directors/Managers will immediately notify their local safety personnel who will notify the NASA Safety and Risk Management Division, (Code QS) or will make provision for direct notification for the Safety and Risk Management Division themselves, with later notification to the Installation Safety Official."

3.2 OSF MISHAP RESPONSE TELECONFERENCE

Upon declaration of an SFO contingency, the AA/OSF may initiate a Mishap Response Teleconference with the AA/OSMA and other senior NASA managers to discuss the contingency. If the teleconference is required, it will be initiated within approximately 2 ½ hours of the actual contingency. The purpose of the teleconference is to determine the extent of the contingency, whether the cause is known, the sequence of events leading to the contingency, and the course of action to be taken.

For all contingencies, the NASA Administrator may choose, or may be requested, to take personal charge of contingency actions, including appointment of an investigation board. If the Administrator decides to appoint the board, he/she will make a determination whether to continue

or terminate any activities convened by lower authority. If the Administrator should decide not to appoint the board, the AA/OSF, in consultation with the AA/OSMA, may determine the course of action.

One or more of the following courses of action could be selected per the requirements of the OSF "Space Flight Operations Contingency Action Plan:"

1. The AA/OSF, or delegated agent, will direct an investigation by such persons and within such scope as is appropriate to the circumstances.
2. The AA/OSF, or delegated agent, will direct a Lead Center Director to appoint an investigation board.
3. The AA/OSF, or delegated agent, will appoint a chairperson and members of an investigation board with the concurrence of the AA/OSMA.
4. The Administrator will appoint a chairperson and members of an investigation board.
5. The Administrator will activate the Mishap Interagency Investigation Board. The AA/OSMA will be an ex-officio member.

Regardless of the course of action selected, the investigation will meet all related requirements established in NPD 8621.1.

3.3 OSMA CONTINGENCY REACTION TELECONFERENCE

Upon notification of an OSF probable or declared SFO contingency, the OSMA QMIC Contingency Coordinator will make provisions (per HOWI 8715-Q034) for an OSMA Contingency Reaction Teleconference. This OSMA teleconference shall be conducted as soon as possible after the OSF Mishap Response Teleconference, utilizing the OSMA Management Information Center (Q-MIC) facility. Participation shall include, as appropriate:

- A. AA/OSMA
- B. Deputy AA/OSMA
- C. Center SMA Directors
- D. OSMA Division Directors
- E. OSF Action Center OSMA representative
- F. SMA MMT representative (as appropriate)
- G. OSMA Contingency Support Personnel
- H. OSMA Emergency Preparedness Coordinator (as required)
- I. OSF Representative (as required)

The teleconference shall be used to independently discuss and plan the OSMA response to the declared contingency to ensure that all OSMA resources are available and ready to support contingency activities as required. AA/OSMA may initiate the OSMA Contingency Notification/Reaction Sequence, Figure 3-1, while OSF is in the process of making a contingency determination.

3.4 OSMA DAILY CONTINGENCY STATUS TELECONFERENCES

In the event of an OSF declared SFO contingency, the OSMA OSF Action Center Representative will make provisions for an OSMA Daily Contingency Status Teleconference. These teleconferences shall be scheduled to begin the day after the contingency and continue until such time that it is determined by the AA/OSMA that the frequency needs to be adjusted or that they are no longer needed. The teleconferences shall be conducted using the Q-MIC facility and for the Space Shuttle/ELV Programs, the pre-launch assessment review (PAR) facility at each Center and for the ISS, the Mission Evaluation Room (MER) is designated as the Technical Action Center at JSC. Participation, as appropriate, shall include personnel listed above in the OSMA Contingency Reaction Teleconference.

Other personnel (e.g., program, payload, nuclear safety, emergency preparedness coordinator, etc.), as designated by the OSMA Director, Enterprise Safety and Mission Assurance (Code QE), may be invited to participate in the teleconferences.

The OSMA daily teleconference shall be used to discuss and plan OSMA actions to ensure that all OSMA resources are available to support contingency activities as required.

3.5 Q-MIC STAFFING DURING POST CONTINGENCY OPERATIONS

Requirements for Q-MIC staffing, security, and information dissemination during post contingency operations will be designated by the OSMA Director, Enterprise Safety and Mission Assurance.

4.0 OSMA RESPONSIBILITIES

4.1 ASSOCIATE ADMINISTRATOR, OSMA

In the event of a probable or declared SFO contingency, the AA/OSMA will:

- A. Participate in the OSF Contingency Mishap Response Teleconference upon notification by the AA/OSF.
- B. Consult with the AA/OSF to determine the course of action/level of investigation required.
- C. Participate as or designate an ex-officio member of the Mishap Interagency Investigation Board upon activation by the Administrator.
- D. Participate in and/or concur with the membership for SFO contingency investigation boards.
- E. Participate in the OSMA Contingency Reaction Teleconference and direct OSMA resources.
- F. Participate in the OSMA Daily Contingency Status Teleconferences.

4.2 SMA MMT REPRESENTATIVES FOR HUMAN SFO

The SMA MMT representative will support pre-launch and launch activities from the Kennedy Space Center (KSC) (launch minus 2 (L-2)) days through crew egress operations. The SMA MMT representative will support on-orbit assembly and operations activities. The appropriate representative will provide OSMA support upon the occurrence of a probable or declared SFO contingency and will be responsible for the following contingency-related activities:

- A. Notify the AA/OSMA in the event of a probable or declared SFO contingency.
- B. Participate in MMT contingency meetings and monitor and report mission information during the contingency.
- C. Upon notification of a probable or declared SFO contingency, announce on the SR&QA net the activation of the OSMA Contingency Action Plan (Shuttle Launches Only).
- D. Notify the OSF Action Center OSMA representative in the event of a probable or declared SFO contingency.
- E. Provide the OSF Action Center OSMA Representative with the necessary information to support an OSMA preliminary contingency evaluation which will be addressed at the OSMA Contingency Reaction Teleconference.
- F. Participate in the OSMA Contingency Reaction Teleconference.
- G. Participate in the OSMA Daily Contingency Status Teleconferences.

4.3 OSF ACTION CENTER OSMA REPRESENTATIVE

The OSF Action Center OSMA representative is the OSMA Enterprise Safety and Mission Assurance Division representative designated to provide OSMA SFO contingency interface to the OSF Action Center in the event of a probable or declared SFO contingency and provide coordination between OSMA and OSF. The following duties apply:

- A. Support mission and non-mission phases for the occurrence of a probable or declared SFO contingency. Mission support will take place at the OSF Action Center to provide the best possible coordination and flow of information between OSF and OSMA.
- B. Maintain contact with the SMA MMT representatives for human SFOs and receive contingency information and direction.
- C. Contact the OSMA Director, Safety and Risk Management, in the event of a probable or declared SFO contingency. Coordinate with the OSMA Safety and Risk Management Division regarding contingency mishap activities.
- D. Obtain necessary OSF information to support an OSMA preliminary contingency evaluation which will be addressed at the OSMA Contingency Reaction Teleconference.
- E. Participate in the OSMA Contingency Reaction Teleconference.
- F. Participate in the OSMA Daily Contingency Status Teleconferences.

- G. Maintain OSMA-related SFO contingency data and information in the Q-MIC for a declared SFO contingency.
- H. Coordinate Q-MIC personnel staffing for post contingency on-going operations as designated by OSMA Director, Enterprise Safety and Mission Assurance.
- I. Coordinate and publish a daily status report for the AA/OSMA regarding OSMA, OSF Action Center, related plans, actions, events, and contingency information.

4.4 OSMA MANAGEMENT

OSMA Division Directors, Staff Members, and Support Personnel, as designated by OSMA Director, Enterprise Safety and Mission Assurance, will support contingency plans and actions in accordance with their area of responsibility, training, knowledge, and background.

4.5 OSMA CONTINGENCY SUPPORT PERSONNEL

OSMA Contingency Support Personnel will be designated by the OSMA Director, Enterprise Safety and Mission Assurance, based on inputs from OSMA Director, Safety and Risk Management and/or Center SMA Directors, as appropriate. Under the leadership of the OSF Action Center OSMA Representative, duties will include assisting in the development of an OSMA preliminary contingency evaluation and any additional ongoing contingency evaluations. Designated support personnel, as requested, will provide OSMA support (data searches, investigations, interviews, evaluations, surveys, audits, insights, assessments, analyses, status reports, etc.) for all SFO mission or non-mission-related contingencies. Support personnel will attend and participate in related meetings, as required.

5.0 INVESTIGATION BOARDS AND WORKING GROUPS

NPG 8621, (Draft), provides detailed information on mishap investigation boards and working groups. Any investigation activities associated with a SFO contingency must meet the requirements of NPD 8621.1.

OSMA Contingency Notification/Reaction Sequence

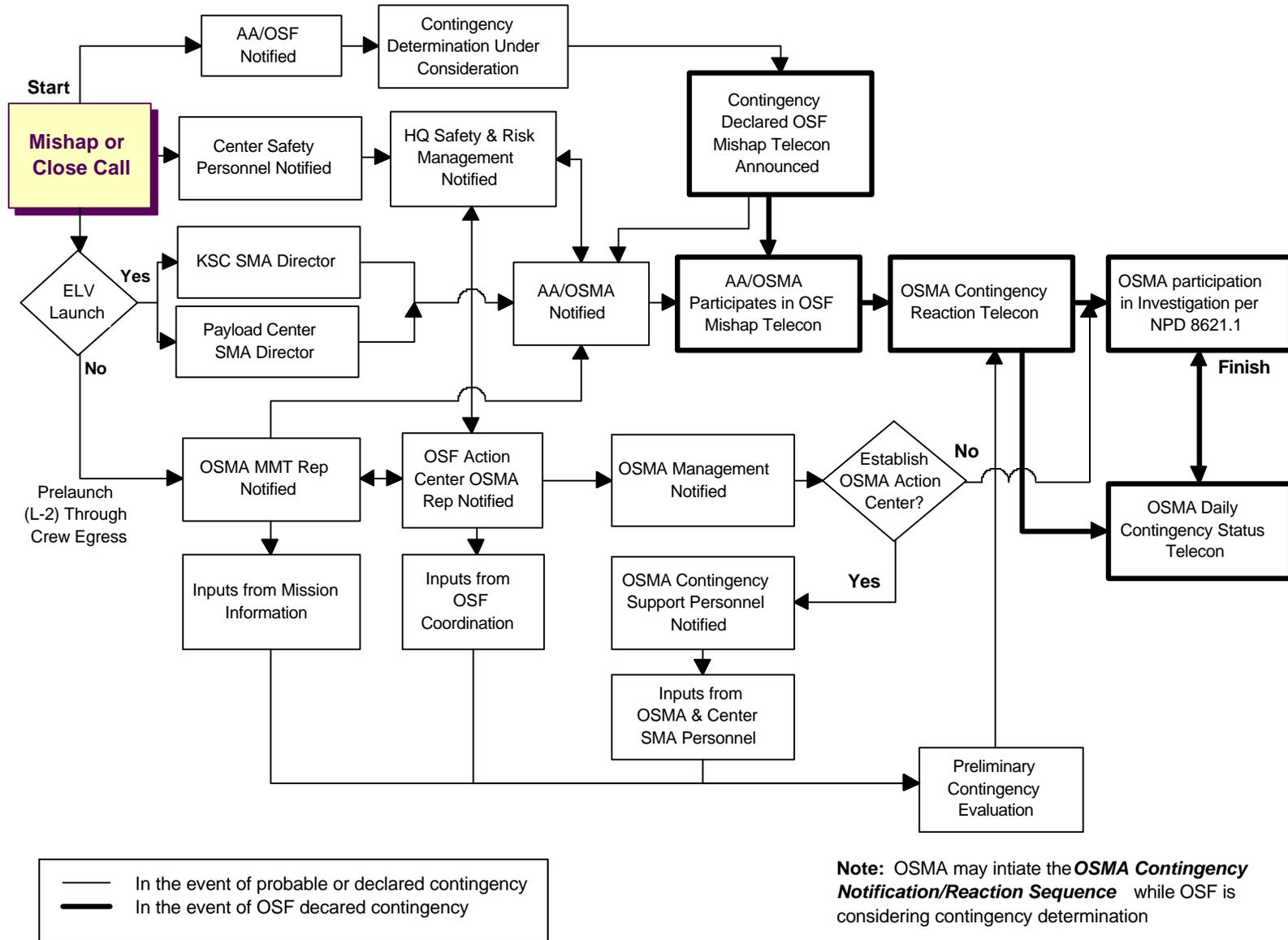


Figure 3-1

**ANNEX 1 OSMA MANAGEMENT CONTINGENCY NOTIFICATION LIST
PRELAUNCH (L-2) THROUGH CREW EGRESS**

THIS ANNEX IS AVAILABLE IN HARD COPY ONLY. CONTACT MR. GILBERT WHITE AT (202) 358-0562 OR gwhite1@hq.nasa.gov TO OBTAIN A COPY.

**ANNEX 2 OSMA MANAGEMENT CONTINGENCY NOTIFICATION LIST
NON-MISSION RELATED**

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**ANNEX 3 OSMA MANAGEMENT CONTINGENCY NOTIFICATION LIST
ON-ORBIT ASSEMBLY AND OPERATIONS**

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**ANNEX 4 OSMA MANAGEMENT CONTINGENCY NOTIFICATION LIST
ELV AND NASA ELV PAYLOADS LAUNCH , DEPLOYMENT AND OPERATIONS**

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