



Procedures and Guidelines

DIRECTIVE NO. 820-PG-8621.1.1D
EFFECTIVE DATE: April 28, 2014
EXPIRATION DATE: April 28, 2020

APPROVED BY Signature: Original Signed by
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COMPLIANCE IS MANDATORY

Responsible Office: 820/Balloon Program Office

Title: Investigation and Reporting Procedures for Balloon Program Mishaps, Failures, and Anomalies

PREFACE

P.1 PURPOSE

This Procedure and Guideline establishes the procedures for initiating and implementing corrective and preventive actions unique to the NASA Balloon Program.

P.2 APPLICABILITY

This PG is applicable to the Balloon Program Office (BPO) and the NASA Scientific Balloon Program's prime support contractor. The NASA Balloon Program Office (Code 820) is administered under the Science Mission Directorate's Suborbital Research Program and implemented by Goddard Space Flight Center (GSFC) / Wallops Flight Facility (WFF) / Suborbital and Special Orbital Projects Directorate (SSOPD)

P.3 AUTHORITY

- a. NPR 8621.1, NASA Procedural Requirements for Mishap and Close Call Reporting, Investigating, and Recordkeeping
- b. GPR 8621.4, GSFC Mishap Preparedness and Contingency Plan
- c. 800-PG-8621.0.1, Suborbital Anomaly Investigation and Reporting

P.4 REFERENCES

- a. NPR 8621.1, NASA Procedural Requirements for Mishap and Close Call Reporting, Investigating, and Recordkeeping
- b. 800-PG-8621.0.1, Suborbital Anomaly Investigation and Reporting
- c. Balloon Program Safety and Mission Assurance Plan, 820-PLAN-2013-1
- d. Suborbital Research Program Plan
- e. Campaign/Mission-specific Mishap Preparedness and Contingency Plan
- f. NAS5-03003, Implementation of NASA's Balloon Flight Program, Operation and Maintenance of the National Scientific Balloon Facilities[†] (NSBF) in Palestine, Texas, and Fort Sumner, New Mexico, and Engineering Support of the NASA Balloon Program.

[†] Columbia Scientific Balloon Facility (CSBF), formerly National Scientific Balloon Facility (NSBF), is notated as such due to referenced documentation filed previous to facility title modification.

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P.5 CANCELLATION

820-PG-8621.1.1C, Investigation and Reporting Procedures for Balloon Program Mishaps, Failures, and Anomalies

P.6 SAFETY

N/A

P.7 TRAINING

N/A

P.8 RECORDS

Record Title	Record Custodian	Retention
Mishap/Failure/Anomaly Investigation Package	820 Records Custodian	NRRS 8/103 Temporary. Destroy/delete between 5 and 30 years after program/project termination.

NRRS - NASA Records Retention Schedule (NPR 1441.1)

P.9 MEASUREMENT/VERIFICATION

N/A

PROCEDURES

In this document, a requirement is identified by “shall,” a good practice by “should,” permission by “may” or “can,” expectation by “will,” and descriptive material by “is.”

The Balloon Program conducts operations local to the host/launch site and remotely through mission support operations. As such, a Balloon Program contingency that results in a Mishap, Close Call, or Accepted Risk can occur onsite or offsite at the location of the incident, e.g., post-termination impact location. Irrespective of the geographic location or host site, NASA will have primacy of investigation of NASA Balloon Program incidents.

NASA requires a formal reporting of balloon project mishaps, failures, anomalies, and discrepancies. The Balloon Program will develop a Mishap Preparedness and Contingency Plan that identifies how the program will respond to an incident. This document makes a distinction between contingencies categorized as a Mishap or Close Call that requires adherence to NPR 8621.1 and an Accepted Risk that will be investigated per 800-PG-8621.0.1. In accordance with NASA policies and programmatic

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implementation, the NASA Balloon Program shall establish Accepted Risk criteria in coordination with its stakeholders and document them in the specific Mission/Project Plan.

A project-level technical investigation team will perform investigation of all failures, anomalies, or discrepancies involving the balloon or flight support, regardless of impact upon flight success. If a mission failure results in death, injury/illness, or unanticipated damage to non-government property, the normal mishap investigation and reporting procedures specified in NPR 8621.1 are required.

The BPO Chief or their designee may appoint and conduct anomaly investigations as they deem appropriate or support mishap investigations as directed. A technical investigation team will perform investigation of contingencies involving the balloon or flight support, regardless of impact upon flight success. The Contractor will provide membership for NASA appointed investigations as required. The Chief, BPO is responsible for the review and approval of these investigations and ensuring corrective actions are accepted and implemented as needed. Unless otherwise directed by NASA HQ, the science Principal Investigator (PI) is responsible for investigating and reporting of experiment failures that occur as a result of the experiment and not due to balloon systems or operations.

The following paragraphs define the procedures to be followed by the CSBF prime support contractor and the BPO.

1.0 Notification

The lead NASA Project/Mission Manager or contractor having immediate oversight and management under which the contingency occurs shall provide immediate notification to the BPO Chief or their designee of all incidents involving anomalies, failure, safety incursions, property damage, personnel injury, or unusual interest or coverage by the news media.

If a contingency occurs as a result of an Accepted Risk, the BPO Chief will implement the notification list per 800-PG-8621.0.1 and through campaign/mission-specific Mishap Preparedness and Contingency Plans, as required. If a contingency results in a Mishap or Close Call, the normal mishap investigation and reporting procedures established in NPR 8621.1 shall be performed.

2.0 Investigations

Following an incident resulting in failure, safety incursion, property damage, injury or anomaly, unless otherwise specified by the Balloon Program Office Chief or their designee, the team will implement the applicable Mishap Preparedness and Contingency Plan, safe the area, perform notifications, and impound and secure all equipment and collect all material evidence germane to the incident. Failures or incidents falling within the category of Accepted Risk will be handled in accordance with 800-PG-8621.0.1. Mishaps or Close Calls will be conducted in accordance with NPR 8621.1.

2.1 BPO Appointed Investigations – The BPO Chief shall appoint the investigation board for balloon anomalies considered as accepted risks. The board may be comprised of NASA, CSBF and other subject-matter expertise contract personnel as may be deemed necessary to conduct the investigation.

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The investigation committee operates independently from the organization under which the incident occurred. The membership of the committee may vary, depending on the nature of the incident. The investigating committee chairman will normally serve as the author of the investigation report. The investigation efforts shall include proximate and root cause of the incident, with findings, conclusions, and recommendations related to the specific incident.

The appointing official will specify the need and due date for a preliminary report and due date for the final report. With prior permission, time limitations may be extended due to operational tempos, or complexity of the incident.

3.0 Mishap, Close Call, and Anomaly Reporting, Corrective Action, and Closeout

Following a mishap or close call investigation, the Investigation Report shall be released per NPR 8621.1. After the mishap report has been authorized for public release, the BPO chief shall direct program personnel to develop a Corrective Action Plan (CAP) for those recommendations approved by the endorsing official in accordance with NPR 8621.1.1. The Chief, BPO, shall work with the WFF Safety Office to report progress toward closeout of the CAP. Further, the Chief, BPO will ensure that BPO personnel develop lessons learned and these shall be submitted to the appointing official.

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Appendix A - Definitions

- A.1 Accepted Risk – The risk that is understood and agreed to by the program/project, governing PMC, Mission Directorate, and other customer(s) such that no further specific mitigating action is required.
- A.2 Anomaly - Any isolated accident, failure, or event that results in damage to flight hardware or could cause a significant schedule slip, significant cost growth, inability to meet mission requirements, and/or inability to transmit or process data.
- A.3 Close Call - An event in which there is no injury or only minor injury requiring first aid and/or no equipment/property damage or minor equipment/property damage (less than \$20,000), but which possesses a potential to cause a mishap.
- A.4 Contract – the contract for the implementation of NASA’s Balloon Flight Program, Operation and Maintenance of the Columbia Scientific Balloon Facility (CSBF) in Palestine, Texas, and Fort Sumner, New Mexico, and the Engineering Support for NASA’s Balloon Program.
- A.5 Contractor – the NASA Scientific Balloon Program’s Prime Support Contractor performing services under the contract.
- A.6 Mishap – As defined by NPR 8621.1B, an unplanned event that results in, but is not limited to, occupational injury to NASA personnel; injury to non-NASA personnel and/or damage to public or private property caused by NASA operations; and destruction of NASA property.
- A.7 Mission Manager - Serves as the single point of contact between NASA and CSBF operations on behalf of the BPO Contracting Officer’s Representative and provides mission safety and project oversight.

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Appendix B - Acronyms

BPO Balloon Program Office
CAP Corrective Action Plan
CSBF Columbia Scientific Balloon Facilities
GSFC Goddard Space Flight Center
HQ Headquarters
NSBF National Scientific Balloon Facilities
PI Principal Investigator
SSOPD Suborbital and Special Orbital Projects Directorate
WFF Wallops Flight Facility

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CHANGE HISTORY LOG

Revision	Effective Date	Description of Changes
Baseline	May 7, 1999	Initial Release
A	January 9, 2002	Updated format. P4 Updated References. P8 Corrected Records Procedures Section updated
B	2/16/05	Modified to clarify requirements in accordance with Center Rules Review recommendations Updated References Renumbered directives to better align with Center directives (820-PG-1710.1.1 replaced by 820-PG-8621.1.1)
C	February 16, 2010	Modified to clarify requirements in accordance with Directorate procedures and guidance. Corrected template. Section 1.0 added role of lead NASA project manager. Section 2.0 added additional paragraph addressing PBO appointed investigations and referenced 800-PG-8621.0.1. Section 3.0 updated to address Corrective Action Plans
D	April 28, 2014	Modified to clarify requirements in accordance with NASA, Center, and Directorate procedures Administrative changes P2 Clarified Applicability to BPO P3 Added GPR 8621.4 P4 Added BPO SMA Plan, Suborbital Research Program Plan, and Campaign/Mission-specific Mishap Preparedness and Contingency Plan Procedures Section, Notification, Investigation, and Mishap, Close Call, and Anomaly Reporting, Corrective Action, and Closeout Sections Updated. Appendix A – Expanded Appendix B - Expanded
	April 25, 2019	Administratively extended for 1 year.

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