NASA Procedural Requirements

NPR 8715.5A
Effective Date: September 17, 2010
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COMPLIANCE IS MANDATORY

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Request Notification of Change (NASA Only)

Subject: Range Flight Safety Program (updated with Change 2)

Responsible Office: Office of Safety and Mission Assurance

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Preface

P.1 Purpose

This NASA Procedural Requirements (NPR) document defines the Agency Range Flight Safety Program. This NPR provides for implementation of NASA Policy Directive 8700.1, NASA Policy for Safety and Mission Success regarding the protection of the public, workforce, and property during range operations associated with flight (see Appendix A of this NPR for detailed definitions for "public," "property," "range operation," and "flight"). Throughout this document, the term "range safety" is used with regard to range flight safety. This NPR describes NASA's range flight safety policy, roles and responsibilities, requirements, and procedures. Chapter 3 of this NPR incorporates NASA's public risk acceptability policy for range operations associated with flight.

P.2 Applicability

P.2.1 This NPR contains requirements that apply to the following:

a. NASA Headquarters, NASA Centers and Component Facilities, the Jet Propulsion Laboratory, a Federally Funded Research and Development Center, and NASA contractors, as provided for in their contracts, when these organizations conduct or participate in missions that involve range operations as defined by this NPR.

b. NASA range operations involving space launch vehicles, entry vehicles (including sample return capsules), reusable launch vehicles (RLVs), fly-back boosters, expendable launch vehicles (ELVs), high altitude balloons, sounding rockets, drones, and unmanned aircraft systems (UAS).

c. NASA vehicle programs that use a range, launch site, or landing site to support their flight missions, including NASA, Department of Defense (DoD), commercial, foreign, or temporary ranges (e.g., Wallops Flight Facility, White Sands Missile Range, Kennedy Space Center (KSC), Eastern Range, Western Range, Reagan Test Site, Kodiak Launch Complex). For simplicity throughout this document, "program" includes any program, project, or acquisition.

> *Note: NASA range operations are subject to this NPR and any local range requirements (e.g., NASA launches at an Air Force range are subject to this NPR and Air Force Space Command Manual (AFSPCMAN) 91-710). The NASA Range Flight Safety Program actively participates with the national range safety community to ensure that NASA requirements remain consistent with the national consensus. In general, range safety requirements at United States Government ranges meet or exceed the requirements in this NPR. The Range Safety Tailoring Process defined in paragraph 1.4 of this NPR provides the mechanism for determining the complete set of NASA and local requirements that apply to a NASA range operation.*

d. United States commercial space vehicles and foreign space vehicles when carrying a NASA payload and/or NASA astronauts and the operation is not conducted under a Federal Aviation Administration (FAA) commercial launch operator license or foreign government range/public safety authority. This NPR does not apply if a range operation is conducted under an FAA license or under foreign government range/public safety authority unless specified by the applicable contract or agreement (see paragraphs 2.2 and 2.4 of this NPR).

P.2.2 This NPR provides technical and procedural range safety requirements for flight, which represent only a portion of the requirements applicable to NASA programs involved in range operations.

P.2.2.1 This NPR does not contain ground safety requirements and does not apply to the processing of a vehicle or payload at a range, launch site, or landing site. NASA vehicles and payloads are subject to the local ground safety requirements and other specific Agency and program requirements. For example, NPR 8715.7, Expendable Launch Vehicle Payload Safety Program, defines NASA's ELV payload safety review process and requirements.

P.2.2.2 This NPR does not apply to on-orbit operations that take place after orbital insertion and prior to final commitment to entry and landing. NPR 8715.6, NASA Procedural Requirements for Limiting Orbital Debris, applies to on-orbit operations.

P.2.2.3 This NPR does not address safety concerns associated with orbital debris. NPR 8715.6 contains requirements for limiting orbital debris generation, including requirements that apply to the disposal of spent launch vehicle upper stages after orbital insertion and orbital spacecraft that have completed their mission.

P.2.2.4 This NPR does not provide for the safety of any crew on board a vehicle during flight. Some requirements in this NPR account for the presence of a flight crew so as to not unnecessarily increase risk to the flight crew. NPR 8705.2, Human-Rating Requirements for Space Systems, addresses crew safety. NPR 7900.3, Aircraft Operations Management, addresses aircraft crew safety and applies to any aircraft involved in a range operation.

P.2.2.5 This NPR does not apply to the transportation or shipping of a vehicle or payload to or from a range, launch site, or landing site when this activity is not part of a range operation. Federal, State, and local regulations apply. NASA STD 8719.12, Safety Standard for Explosives, Propellants, and Pyrotechnics, provides information concerning the transportation of any vehicle or payload containing explosives, propellants, or pyrotechnics.

P.2.2.6 This NPR does not contain mission assurance requirements. The following applies with regard to mission assurance for launch vehicles and spacecraft: NASA STD 8709.2, NASA Safety and Mission Assurance Roles and Responsibilities for Expendable Launch Vehicle Services.

P.2.2.7 This NPR does not contain requirements for environmental protection. NPR 8580.1, Implementing the National Environmental Policy Act and Executive Order 12114, applies with regard to environmental protection during range operations.

P.2.2.8 This NPR does not apply to conventional piloted aircraft unless a specific aspect of an operation requires range safety involvement to protect the public, workforce, and/or property. This NPR does not apply to inhabited or uninhabited ground or underwater vehicles.

P.2.2.9 This NPR does not apply with regard to potential acts of terror during a range operation. NPR 8715.2, NASA Emergency Preparedness Procedural Requirements, takes precedence with regard to such potential cases.

P.2.3 Existing programs that have completed the range safety tailoring process (see paragraph 1.4 of this NPR) using the previous version of this NPR and prior to the issue date of this version need not modify their program-specific range safety requirements to reflect this version and may continue working to their approved tailored range safety requirements.

> *Note: The significant changes associated with this version of this NPR provide programs with clarification and added flexibility. There are no critical safety concerns being addressed by specific changes in this version of this NPR. Existing programs may elect to update their tailored range safety requirements to incorporate this version of this NPR.*

P 2.4 NM 8715-79, Granting Relief from Agency-level Safety and Mission Assurance Requirements, does not apply to the requirements of this NPR. The processes for granting relief from NASA range safety requirements are covered in paragraphs 1.4, 1.5, and 1.6 of this NPR.

P.3 Authority

42 U.S.C. 2473(c)(1), Section 203(c)(1) of the National Aeronautics and Space Act of 1958, as amended.

P.4 Applicable Documents

a. 14 CFR 101: Aeronautics and Space, Part 101 - Moored Balloons, Kites, Unmanned Rockets and Unmanned Free Balloons.

b. 14 CFR Aeronautics and Space, Parts 400-1199, Commercial Space Transportation, Federal Aviation Administration, Department of Transportation.

c. 29 CFR 1910.1200, Hazard Communication.

d. NPD 1050.1, Authority to Enter Into Space Act Agreements.

e. NPD 1360.2, Initiation and Development of International Cooperation in Space and Aeronautics Programs.

f. NPD 1371.5, Coordination and Authorization of Access by Foreign Nationals and Foreign Representatives to NASA.

g. NPD 1800.2, NASA Occupational Health Program.

h. NPD 8700.1, NASA Policy for Safety and Mission Success.

i. NPD 8710.1, Emergency Preparedness Program.

j. NPR 1371.2, Procedural Requirements for Processing Requests for Access to NASA Installations or Facilities by Foreign Nationals or U.S. Citizens Who are Representatives of Foreign Entities.

k. NPR 1800.1, NASA Occupational Health Program Procedures.

l. NPR 7120.5, NASA Space Flight Program and Project Management Requirements.

m. NPR 7150.2, NASA Software Engineering Requirements.

n. NPR 7900.3, Aircraft Operations Management.

o. NPR 8000.4, Agency Risk Management Procedural Requirements.

p. NPR 8580.1, Implementing The National Environmental Policy Act And Executive Order 12114.

q. NPR 8621.1, NASA Procedural Requirements for Mishap and Close Call Reporting, Investigating, and Recordkeeping.

r. NPR 8705.2, Human-Rating Requirements for Space Systems.

s. NPR 8705.6, Safety and Mission Assurance Audits, Reviews, and Assessments.

t. NPR 8715.2, NASA Emergency Preparedness Plan Procedural Requirements.

u. NPR 8715.3, NASA General Safety Program Requirements.

v. NM 8715-79, Granting Relief from Agency-level Safety and Mission Assurance Requirements.

w. NPR 8715.6, NASA Procedural Requirements for Limiting Orbital Debris.

x. NPR 8715.7, Expendable Launch Vehicle Payload Safety Program.

y. NASA STD 8709.2, NASA Safety and Mission Assurance Roles and Responsibilities for Expendable Launch Vehicle Services.

z. NASA STD 8719.12, Safety Standard for Explosives, Propellants, and Pyrotechnics.

aa. NASA STD 8719.13, Software Safety Standard.

ab. RCC 319, Range Commanders Council Flight Termination Systems Commonality Standard.

ac. RCC 321, Range Commanders Council Common Risk Criteria for National Test Ranges.

ad. RCC 323, Range Commanders Council Range Safety Criteria for Unmanned Air Vehicles.

ae. RCC 555, User Guide for Unmanned Aerial Systems Operations on National Ranges.

af. The American Industrial Hygiene Association - Emergency Response Planning Guidelines.

ag. Abbreviated Injury Scale (AIS), Association for the Advancement of Automotive Medicine.

ah. Air Force Instruction (AFI) 91-217, Space Safety and Mishap Prevention Program.

ai. Air Force Space Command Manual (AFSPCMAN) 91-710, Range Safety User Requirements Manual.

aj. Eastern and Western Range (EWR) 127-1, Range Safety Requirements.

P.5 Measurement/Verification

Compliance with the requirements contained in this NPR will be verified through processes contained in NPR 8705.6, Safety and Mission Assurance Audits, Reviews, and Assessments.

P.6 Cancellation

NPR 8715.5, Range Safety Program, dated July 8, 2005.

/S/
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