



Subject: Product Assurance Program

Responsible Office: Safety and Mission Assurance Office

P.1 POLICY

This directive sets forth policy, responsibilities, and authority for the Langley Research Center (LaRC) Safety & Mission Assurance Product Assurance (PA) functions for applicable projects. These PA functions include: system safety; hardware quality assurance; reliability; electrical, electronic and electro-mechanical (EEE) parts, materials and processes; software assurance; and risk management. This Center will plan and execute product assurance activities utilizing practical and cost-effective measures in order to accomplish project flight success commensurate with the research or science objectives while complying with Agency policy.

P.2 APPLICABILITY

- a. This LaRC directive is applicable for the types of projects specified in P.2.a.(1)-(4) below:
 - (1) Space flight projects such as earth science instruments and missions, International Space Station payloads and experiments, and planetary science payloads and missions.
 - (2) Human space flight projects.
 - (3) Risk reduction flights; flight experiments; flights of opportunity that are suborbital; flights involving sounding rockets; un-crewed aerospace vehicles.
 - (4) Major drop models or unmanned aerial vehicle (UAV) operations as determined by Center management.
- b. This LaRC directive is applicable to all government civil servants and also to contractors or other tenant organization employees at LaRC in accordance with the terms expressed in their respective contracts, agreements, or joint operating procedures.
- c. Projects and/or experiments of a technology readiness level (TRL) of 6 or higher that will be demonstrated in a relevant environment via a flight test shall be subject to Safety and Mission Assurance (S&MA) review, LPR 5300.1, and all requirements identified in the S&MA review.
- d. Excluded from this policy are wind tunnel models and flight experiments in aircraft.
- e. In this directive, all mandatory actions (i.e., requirements) are denoted by statements containing the term "shall." The terms "may" or "can" denote discretionary privilege or permission. "Should" denotes a good practice and is recommended, but not required. "Will" denotes expected outcome, and "are/is" denotes descriptive material.

- f. In this directive, all document citations are assumed to be the latest version unless otherwise noted.

P.3 AUTHORITY

NPD 8700.1, NASA Policy for Safety and Mission Success

P.4 APPLICABLE DOCUMENTS

- a. NASA-STD-8739.8, Standard for Software Assurance
- b. NPD 8720.1, NASA Reliability and Maintainability (R&M) Program Policy
- c. NPD 8730.2, NASA Parts Policy
- d. NPD 8730.5, NASA Quality Assurance Program Policy
- e. NPR 8000.4, Agency Risk Management Procedural Requirements
- f. NPR 8705.4, Risk Classifications for NASA Payloads
- g. NPR 8715.3, NASA General Safety Program Requirements
- h. NPR 8735.2, Management of Government Quality Assurance Functions for NASA Contracts
- i. LPR 5300.1, Product Assurance Requirements Document

P.5 RESPONSIBILITIES

a. General

- (1) The Safety and Mission Assurance Office (SMAO) is the LaRC authority responsible for PA activities on the Center.
- (2) LPR 5300.1 specifies flight project PA requirements and procedures to ensure safety and mission assurance. All Center flight projects (as identified in P.2) shall develop PA plans in compliance with LPR 5300.1.
- (3) Consult with the Mission Assurance Branch (MAB) for interpretations, waivers, or deviations from LPR 5300.1 when indicated for the effective execution of particular flight projects.

b. Center Director is responsible for:

- (1) The safety and mission success of the Center activities and operations.
- (2) Designating a Center Safety and Mission Assurance Director to serve as the leader and focal point for the Center's S&MA activities.
- (3) Serving as the risk acceptance/disposition official for residual safety and mission success risk for Center project activities as specified in NPD 8700.1.

c. Director, SMAO, is responsible for:

- (1) Providing S&MA leadership and policy implementation direction for Center-hosted programs, projects, and operations.
- (2) Serving as the Center focal point for reporting and communication of alternative and independent S&MA assessments, issues and positions.
- (3) Providing guidance and direction for Center-wide PA activities.
- (4) Ensuring compliance with the S&MA policies of NASA and LaRC, and proper coordination of S&MA activities.
- (5) Evaluating the effectiveness of Center PA activities, making recommendations for improvements, ensuring effective follow-up on recommendations, and preparing reports on Center PA activities.
- (6) Ensuring that effective and efficient S&MA processes are in place to enhance the potential for success of NASA programs, projects, elements, and activities hosted by the Center.

d. Line Managers are responsible for:

- (1) Ensuring proper application of PA requirements to activities under their supervision.

e. Project Managers are responsible for:

- (1) Developing product assurance plans in concert with the MAB, SMAO.
- (2) Implementing product assurance plans consistent with project objectives.
- (3) Coordinating PA activities with the MAB, SMAO.
- (4) Ensuring compliance with Center-wide policies and processes.
- (5) Accepting any residual safety and mission success risk for activities within their decision authority for the program/project/element.

f. Mission Assurance Branch, SMAO, is responsible for:

- (1) Planning, directing, and executing a comprehensive program to provide the PA required for this Center's projects.
- (2) Defining and implementing Center-wide space and applicable flight project PA policy and procedures.
- (3) Conducting surveillance and independent PA assessments to enhance (a) the success of programs, projects, elements, and activities; and (b) the effectiveness of SMA activities.
- (4) Representing the Center on PA matters at conferences, symposia, and meetings sponsored by industry, government, universities, and professional and technical societies.
- (5) Preparing and implementing product assurance plans in concert with Project Managers.

- (6) Providing staffing and expertise for safety, reliability, quality assurance, and software assurance activities.
- (7) Providing product assurance personnel for Center-related committees, panels, boards, surveys, and teams.

g. Research, Project, and Engineering Organizations are responsible for:

- (1) Performing responsibilities in accordance with product assurance plans and PA policies and directives.

P.6 DELEGATION OF AUTHORITY

None

P.7 MEASUREMENT/VERIFICATION

The Safety and Mission Assurance Annual Operating Agreement contains metrics that pertain to compliance with this policy directive and LPR 5300.1.

P.8 CANCELLATION

LAPD 5300.1 L-1, dated July 6, 2010

/s/ Clayton P. Turner 10/11/2015
Center Deputy Director Date

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