Langley Policy Directive

LAPD 5300.1 N-2
Effective Date: November 13, 2020
Expiration Date: November 30, 2025

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 and 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; and software assurance. 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)-(5) 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; technology demonstration flight experiments including CubeSATs; 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.

(5) Instruments or payload development governed under NPR 7120.8 for a flight test and/or managed under the purview of NPR 7900.3.

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 the installation processes for

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

b. NPR 7120.8, NASA Research and Technology Program and Project Management Requirements.

c. NPR 7900.3, Aircraft Operations Management.

d. LPR 5300.1, Product Assurance Requirements.

e. NASA-STD-8729.1, Nasa Reliability and Maintainability (R&M) Standard for Spaceflight and Support Systems.

f. NASA-STD-8739.10, Electrical, Electronic, and Electromechanical (EEE) Parts Assurance Standard.

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) Project personnel shall 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.

(4) Additional product assurance and S&MA references are listed in Attachment A of this LAPD.

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 contained in LPR 5300.1.

(3) Serving as the Chief Safety and Mission Assurance Officer (CSO) for SMA Technical Authority functions.

(4) Conducting surveillance and independent PA assessments to enhance (a) the success of programs, projects, elements, and activities; and (b) the

effectiveness of S&MA activities.

(5) Representing the Center on PA matters at conferences, symposia, and meetings sponsored by industry, government, universities, and professional and technical societies.

(6) Preparing and implementing product assurance plans in concert with Project Managers.

(7) Providing staffing and expertise for safety, reliability, quality assurance, and software assurance activities.

(8) 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 M, dated July 6, 2010

/s/ David F. Young *November 13, 2020*

Deputy Director Date

Original signed on file

DISTRIBUTION: Approved for public release via the Langley Management System; distribution is unlimited.

Attachment A. References

a. NPR 8000.4, Agency Risk Management Procedural Requirements.

b. NPR 8705.4, Risk Classification for NASA Payloads.

c. NPR 8715.3, NASA General Safety Program Requirements.

d. NPR 8735.2, Hardware Quality Assurance Program Requirements for Programs and Projects.

e. NASA-STD-8729.1, Nasa Reliability and Maintainability (R&M) Standard for Spaceflight and Support Systems.

f. NASA-STD-8739.8, Software Assurance and Software Safety Standard.

g. NASA-STD-8739.10, Electrical, Electronic, and Electromechanical (EEE) Parts Assurance Standard.