



NASA
Procedural
Requirements

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COMPLIANCE IS MANDATORY

Lessons Learned Process

Responsible Office: Office of the Chief Engineer

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Preface

P.1 Purpose

This NASA Procedural Requirement (NPR) establishes the requirements for the collection, validation, assessment, and codification of lessons learned submitted by individuals, NASA directorates, programs and projects, and any supporting organizations and personnel.

P.2 Applicability and Scope

P.2.1 This NPR applies to NASA Headquarters and NASA Centers, including Component Facilities, and NASA contractors to the extent specified in their respective contracts.

P.2.2 This document provides the basic processes and requirements for the implementation of the NASA Lessons Learned Process. Lessons may involve, but are not limited to: engineering, technical, science, operations, administrative, procurement, management, safety, maintenance, training, flight or ground-based systems, facilities, medical, and other activities.

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 References

- a. NPR 7120.5, NASA Program and Project Management Processes and Requirements.
- b. NPR 8621.1, NASA Procedural Requirements for Mishap Reporting, Investigating, and Recordkeeping
- c. NPR 1441.1, NASA Records Retention Schedules

P.5 Cancellation

None.

**/S/
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Chapter 1. Lessons Learned Requirements

1.1 NASA Lessons Learned Overview.

This NPR establishes the Agency's requirements for collecting, assessing, validating, documenting, and infusing lessons learned recommendations involving, but not limited to: engineering, technical, science, operations, administrative, procurement, management, safety, maintenance, training, flight or ground-based systems, facilities, medical, and other activities. The Center-level Lessons Learned Committees are the key organizational elements in administering this process. An Agency-level Lessons Learned Steering Committee facilitates knowledge sharing of lessons learned activities across NASA Centers.

1.2 Lessons Learned Process Concept.

The lessons learned process is a two-level (Centers and HQ) set of information management processes designed to preserve institutional knowledge and correct identified deficiencies and/or improve performance in the areas identified above. Lessons shall be collected from individuals, projects and programs, or supporting organizations primarily at the Center level. Lesson recommendations shall be assessed for potential changes to policy, procedures, guidelines, technical standards, training, education curricula, etc. and infused back into the system via existing corrective action systems.

1.3 Lessons Learned Requirements Precedence.

NASA lessons learned requirements exist in several procedural directives/requirements documents. Most of these requirements are owned by the Office of the Chief Engineer or the Office of Safety and Mission Assurance. For example, NPR 7120.5, "NASA Program and Project Management Processes and Requirements," invokes the basic requirement to capture knowledge, and NPR 8621.1, "NASA Procedural Requirements for Mishap Reporting, Investigating, and Recordkeeping," invokes the requirement to develop, disposition, submit, and approve lessons learned as part of the post investigation activities. This NPR explains how to process the knowledge captured under NPR 7120.5, NPR 8621.1, and the other referenced documents through two principle requirements: 1) establishment of lessons learned committees at the Center level, and 2) closed-loop infusion of lessons learned recommendations into Center and HQ documentation and training. Contractors are encouraged to use their existing lessons learned processes and systems where they meet the requirements of this NPR.

1.4 NASA Lessons Learned Organizational Requirements

NASA uses the following organizational elements to accomplish the requirements of this NPR:

1.4.1 Users. All NASA and NASA contractor personnel.

1.4.2 NASA Headquarters, Office of the Chief Engineer (OCE). The OCE shall:

- a. Serve as the Office of Primary Responsibility (OPR) for oversight of the NASA lessons learned process.
- b. Provide a Headquarters Data Manager (HDM) to manage the activities in 1.4.5.
- c. Take action to sustain the NASA lessons learned process and the NASA lessons learned database as a NASA resource. This database is known as the Lessons Learned Information System (LLIS) and may be found at: <http://llis.nasa.gov/>

1.4.3. Lessons Learned Steering Committee (LLSC). The Headquarters Data Manager shall chair the LLSC. Members include Center Data Managers. The LLSC shall:

- a. Coordinate special lessons learned studies, reviews, and evaluations.
- b. Participate in the development of Agency-level lessons learned policy.
- c. Facilitate lessons learned knowledge sharing across NASA Centers.
- d. Promote the use of the lessons learned process and use of the LLIS database.

1.4.4. Lessons Learned Committees (LLC). Each Center shall establish and maintain an LLC with adequate representation from across the Center's organizations. The LLCs are a key element to ensuring Center-wide commitment, product quality, and effective implementation of this NPR. Each LLC shall:

- a. Establish, document, and maintain a Center-specific lessons learned process.
- b. Administer and oversee the process of transforming candidate lesson learned material into complete, formatted, lessons learned ready for HDM review and input into the LLIS.
- c. Coordinate the transfer of the lessons learned recommendations to the Centers' corrective action system(s).
- d. Promote the use of lessons learned during technical reviews and throughout the program/project life cycle.

1.4.5 Center Data Manager (CDM). The CDMs shall:

- a. Serve as a member of their Center Lessons Learned Committee and the LLSC.
- b. Coordinate review of approved lessons learned for export control, patent, legal, and public affairs clearance.
- c. Maintain Center lessons learned archives and metrics.

1.4.6 Headquarters Data Manager (HDM). The HDM shall:

- a. Chair the Lessons Learned Steering Committee (LLSC).
- b. Process lessons learned submitted by Headquarters and NASA Centers for inclusion in the LLIS database.
- c. Coordinate the transfer of the lessons learned recommendations requiring HQ action to the HQ corrective action system(s).
- d. Coordinate trend analysis of lessons learned.
- e. Maintain lessons learned process metrics and analyze the data to derive actions necessary for continuous improvement of the lessons learned process.
- f. Promote the consistency and quality of lessons learned documentation.

1.4.7 Lessons Learned Curator. The Lessons Learned Curator shall:

- a. Provide a final quality assurance function on lessons reviewed by the HDM before uploading to the LLIS database. This includes grammatical and spelling checks as well as the placement of supporting documentation.
- b. Provide user helpdesk functions for the LLIS website.
- c. Provide monthly usage metrics information to the LLCs and LLSC.
- d. Ensure the Lesson Learned Database is maintained as Federal records in accordance with NPR 1441.1.

Appendix A. Lessons Learned Process Flow

A.1 NASA Lessons Learned Process. Supports the full range of NASA activities by integrating Center-level and Headquarters lessons learned resources. A process flowchart is provided in Figure A-1.

A.1.1 Collection and Processing. The collection and processing of lessons learned is administered at each Center by their LLC. The LLC, as author or recipient of lessons learned, shall develop recommendation(s) consistent with analysis of the lessons learned inputs. Recommendations should be written at a level of detail such that the recommendation is actionable and can be implemented. Actions could range from changing a plan or procedure to changes in training and so on. The LLC procedures should include:

- a. Actively soliciting lessons learned material from Center, contractor, and industry sources.
- b. Reviewing significant events that impact Center mission success for their candidacy as NASA lessons learned.
- c. Validating lessons learned with subject matter experts, if required.
- d. Evaluating lessons learned submissions and developing a final lessons learned draft that includes actionable recommendations for submission to the Center Data Managers (CDM).
- e. Other procedural steps to ensure a quality product.

A.1.2 Infusion Process. A lessons learned infusion process is required to "close-the-loop" on actionable lessons learned recommendations at the Center and HQ levels.

A.1.2.1 Center-Level Infusion Process. The LLC ensures that lessons learned recommendations are transferred to the appropriate Center-level corrective action tracking system. In addition, the LLC promotes the use of LLIS and other means of communication (e.g., e-mail, workshops, newsletters).

A.1.2.2 HQ-Level Infusion Process. The Headquarters Data Manager (HDM) ensures that lessons learned recommendations are reviewed by the appropriate mission directorate or mission support directorate and transferred to the appropriate HQ corrective action tracking system(s).

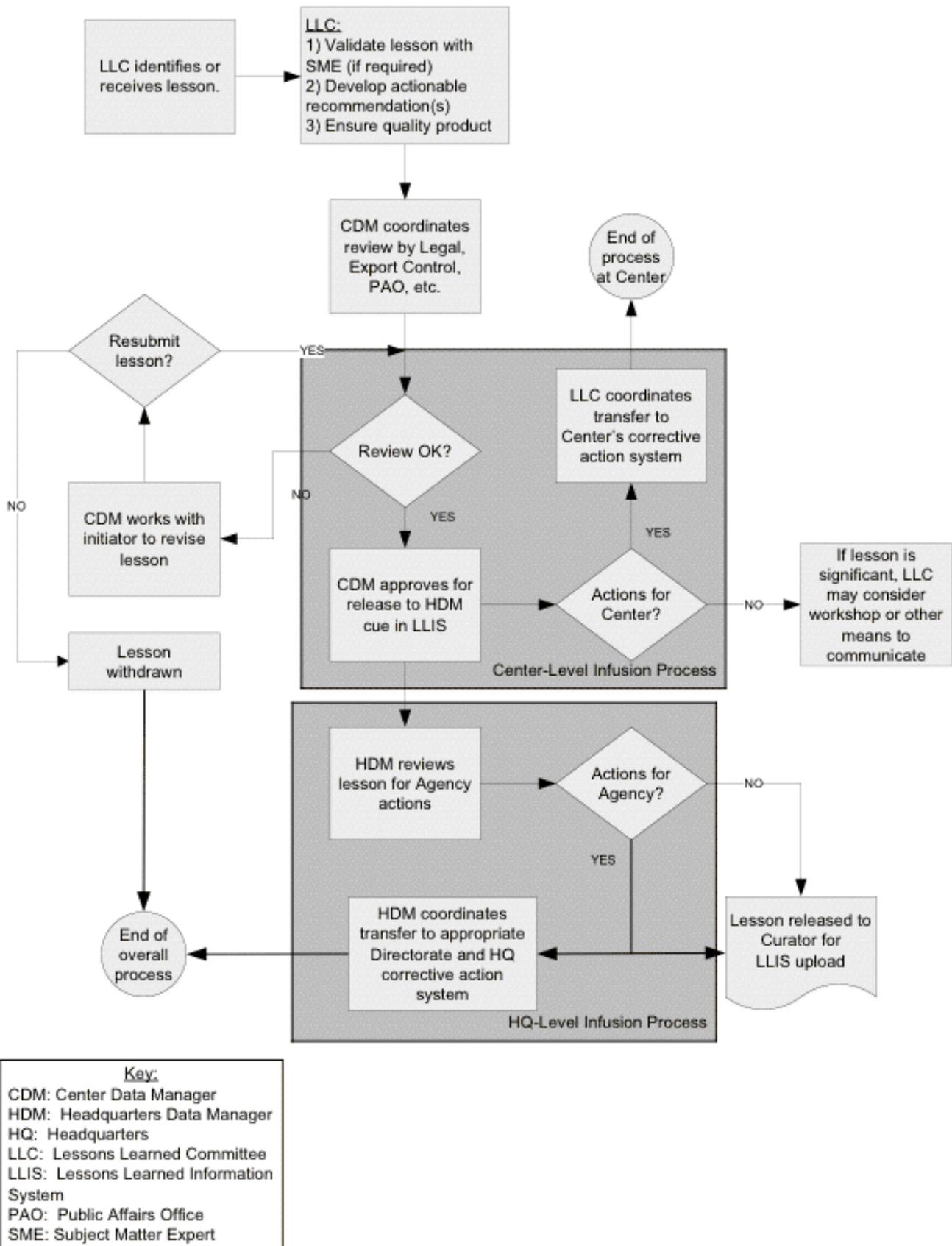


Figure A-1. Lessons learned process flow diagram.

Appendix B. Acronyms

CDM Center Data Manager
HDM Headquarters Data Manager
HQ Headquarters
LLC Lessons Learned Committee
LLIS Lessons Learned Information System
LLSC Lessons Learned Steering Committee
NASA National Aeronautics and Space Administration
NPD NASA Policy Directive
NPR NASA Procedural Requirements
OPR Office of Primary Responsibility
PAO Public Affairs Office
SME Subject Matter Expert
U.S.C. United States Code