GLENN PROCEDURAL REQUIREMENTS

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Responsible Office: F/Facilities, Test and Center Operations Directorate

Subject: Glenn Research Center Environmental Management System w/Change 5 (09/10/2026)

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DISTRIBUTION: Business Management System (BMS) Library

Preface

P.1 Purpose

a. This document presents the Glenn Research Center (GRC) Environmental Management System (EMS) requirements. These requirements actively involve senior management and all GRC staff in support of the GRC EMS. The people, procedures, and work practices involved are presented in a formal structure to ensure that priority environmental aspects of GRC are identified and addressed. These procedures and practices promote continual improvement by periodically evaluating environmental performance.

b. The purpose of the EMS requirements is to ensure GRC complies with and supports the Agency NASA Procedural Requirements (NPR) 8553.1, NASA Environmental Management System, and to establish a comprehensive approach to managing environmental activities for efficient, prioritized program execution. This document describes GRC EMS procedures and references various documents demonstrating compliance and conformity with NPR 8553.1 requirements.

c. NASA GRC has elected to issue a Declaration of Conformance for its EMS, as described in NPR 8553.1.

P.2 Applicability

a. This directive is applicable to all GRC employees, operations and their associated activities, products and services at both Lewis Field and Neil A. Armstrong Test Facility.

b. This document provides the overall direction for GRC to support the NASA commitment to environmental management. It serves as the main resource for effective implementation and maintenance of the GRC EMS.

c. This directive is applicable to documents developed or revised after the effective date of this Glenn Procedural Requirements (GLPR).

d. In this directive, all mandatory actions (i.e., requirements) are denoted by statements containing the term "shall." The terms “may” denotes a discretionary privilege or permission, “can” denotes statements of possibility or capability, “should” denotes a good practice and is recommended, but not required, “will” denotes expected outcome, and “are/is” denotes descriptive material.

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

P.3 Authority

a. NASA Policy Directive (NPD) 8500.1, NASA Environmental Management

b. NPR 8553.1, NASA Environmental Management System

P.4 Applicable Documents and Forms

a. GLPR 1410.1, Glenn Directives Management

b. GLPR 1420.1, Forms Management Program

c. GLPR 1440.1, Records Management

d. GLPR 3410.1, On-the-Job Training (OJT) Documentation

e. Glenn Manual (GLM)-FE-8500.1, NASA Glenn Research Center Environmental Programs Manual

f. Glenn Procedure (GLP)-Q-1280.2, Corrective and Preventive Action

g. GLP-QS-8715.1-2, Glenn Safety Manual, Chapter 2: Safety and Health Traning and Certification

h. Glenn Work Instruction (GLWI)-FE-8550.1, Glenn Research Center Environmental Management System Internal Environmental Compliance Evaluations

i. NASA Standard (STD)-8739.12, Metrology and Calibration

j. GRC EMS Fiscal Year Planning – Directorate Risk Matrix Form

P.5 Measurement/Verification

Measures of the effectiveness of GRC EMS include compliance with regulatory requirements and achievement of the annual EMS Objectives and Targets. Performance relating to these topics, as well as other topics idenitifed in Chapter 6 of this document, are presentated to the Mission Support Council (MSC) on a regular basis.

P.6 Cancellation

This directive cancels GLPR 8553.1E, Glenn Research Center Environmental Management System Manual, dated September 25, 2017.

/s/Laurence A. Sivic

Laurence A. Sivic
Associate Director

CHAPTER 1. Policy and Planning

1.1 Environmental Policy

The NASA GRC Environmental Policy is described as operating in a manner that protects and preserves the environment through pollution prevention, the continual improvement of our operations, and complying with regulations.

1.2 Environmental Aspects and Impacts

1.2.1 The GRC follows NPR 8553.1 and takes the resultant priority environmental aspects into account in setting objectives and targets. All changes in GRC operations are also reviewed to determine if they have priority environmental aspects and impacts. The directorate risk matrix form (Appendix D) shall be updated by each Center directorate on an annual basis.

1.2.2 Reviews conducted as part of the National Environmental Policy Act (NEPA) requirements may be used to identify potential changes in aspects and/or impacts (See GLM-FE-8500.1-2, Environmental Programs Manual (EPM), Chapter 2).

1.2.3 Compliance inspection results, including environmental findings from internal and external audits are incorporated into the annual risk matrix review process.

1.2.4 An example risk matrix form is shown in Appendix D and is used to capture directorate activities that may have an impact on the environment. The current consolidated GRC priority risk matrix form is documented, with date of most recent review, and maintained in the Environmental Management Office (EMO) files.

1.3 Legal and Other Requirements

1.3.1. The EMO manages programs in compliance with applicable environmental rules and regulations. Each chapter of the EPM contains a listing of relevant laws, regulations, and other requirements that GRC complies with as part of its efforts to manage the specific environmental program.

1.3.2 The EPM contains guidance on regulations applicable to GRC's environmental aspects. This guidance follows United States Environmental Protection Agency, Ohio Environmental Protection Agency, Executive Orders, and other state and local environmental laws and regulations, respectively, and can be found on their Web sites.

1.3.3 The EMO maintains copies of all environmental permits, licenses, and agreements. The EMO also reviews compliance inspection results and works with GRC, NASA, and regulatory agencies to correct all deficiencies, including those related to legal and other requirements.

1.4 Objectives, Targets, and Programs

1.4.1 The procedure for implementing EMS objectives, targets, and programs is summarized in Chapter 3 of NPR 8553.1.

a. For each fiscal year, the EMS representative, with input from each Directorate, shall identify and prioritize objectives and targets for management review and approval. Priority environmental aspects, legal and other requirements are taken into account when developing these objectives and targets. The annual EMS Objectives and Targets are presented to the MSC for approval.

b. Management considers technological options, financial, operational, and business requirements, and the views of interested parties when approving the proposed objectives and targets.

c. All objectives and targets shall be consistent with the environmental policy. Progress toward achieving Center objectives and targets is reported to the MSC regularly throughout the year, and corrective actions may be implemented for activities or operations not meeting targets. The GRC's records that relate to objectives and targets include, but are not limited to, the following:

(1) Completed risk matrix from each Directorate.

(2) Consolidated GRC priority risk matrix.

(3) Current objectives and targets.

(4) MSC minutes.

1.4.2 An objectives and target plan is developed for each fiscal year which describes the objective, related targets, the individual responsible for reporting progress on the target, associated environmental management program(s) used to manage/monitor the target, due dates, and performance indicators (metrics).

CHAPTER 2. Implementation and Operation

2.1 Resources, Roles, Responsibility, and Authority

2.1.1 The Center Director shall:

a. Appoint an EMS Representative with appropriate authority, background, and training to implement and maintain GRC's EMS.

b. Allocate resources for the effective operation and maintenance of the GRC EMS.

c. Direct the MSC to perform management review of GRC EMS for suitability, adequacy, and effectiveness.

2.1.2 The MSC shall:

a. Review and approve annual environmental objectives and targets.

b. Regularly review the performance the Center is making on achieving the annual GRC EMS objectives and targets.

c. Conduct management review of the GRC EMS as part of the BMS Management Review and assess Declaration of Conformance of the GRC EMS as described in NPR 8553.1.

2.1.3 Center Directorates

a. Shall perform an annual risk evaluation of its operations (see Section 3.1) and submit a copy to the GRC EMS Representative and GRC EMS Coordinator. Based on the Center's annual objectives and targets, each Directorate, when applicable, will develop a plan to be in alignment with, and in support of, the Center's environmental objectives & targets.

b. Center directorates represented on the MSC can review the GRC EMS for status and viability.

c. Shall appoint an EMS Point of Contact (POC) for that Directorate to coordinate the completion of the annual Directorate risk matrix review and communicate Directorate activities supporting annual EMS Objectives and Targets. For larger Directorates, Division EMS POCs may be selected to coordinate the completion of the annual risk matrix for various Division activities. The Division EMS POCs may also communicate activities that support the annual EMS Objectives and Targets.

2.1.4 Code F Director

a. Designated as the Center Sustainability Officer.

b. May assign roles and responsibilities for the GRC EMS Representative.

c. May advocate for resources to the MSC for the effective operation, maintenance, and improvement of the GRC EMS.

2.1.5 The GRC EMS Representative

a. Shall:

(1) Document and communicate roles, responsibilities, and authorities to facilitate effective implementation of the EMS.

(2) Review environmental risk information submitted by the directorates and using technical and economic feasibility, propose Center objectives and targets to the MSC for approval. When it is decided not to set objectives and targets to address high priority aspects, a review of technical and economic feasibility shall be completed and documented.

(3) Exercise the authority necessary to implement and maintain the GRC EMS.

(4) Periodically assess, review, and report on the condition of the GRC EMS to the MSC.

b. May:

(1) Request resources for the effective operation, maintenance, and improvement of the GRC EMS.

(2) Provide review of and propose changes to objectives and targets to the MSC.

(3) Make recommendations to the MSC for improvement of the GRC EMS.

2.1.6 The EMO Program Managers

a. Shall:

(1) Conduct periodic review of assigned GRC EPM chapters for potential updates or revisions.

(2) Maintain appropriate records according to established procedures.

b. May review the directorate risk matrices for consistency with specific compliance programs.

2.1.7 The GRC EMS Coordinator

a. Shall:

support the GRC EMS Representative in the implementation and maintenance of the GRC EMS at the Center.

(1) Prepare EMS progress and performance reports to be presented to the MSC.

(2) Distribute and coordinate the completion of annual directorate risk matrix evaluations.

(3) Communicate the annual GRC EMS objectives and targets and other relevant EMS-related communications to GRC employees.

(4) Ensure that the Center environmental policy is communicated to all employees and is made available to the public.

(5) Review proposed objectives and targets to ensure consistency with the environmental policy.

b. May stand in for the GRC EMS Representative to give presentations to the MSC on GRC EMS progress and performance.

2.1.8 The EMO

a. Stop Work Authority is granted to the Chief, EMO and the Environmental Programs Manager for any activity that is determined to have an imminent threat of environmental damage.

b. Shall:

(1) Research and assist the Office of Communications (OCOMM) in providing responses to environmental communications from the media and public, and with the Legislative Affairs Officer regarding communications from elected officials.

(2) Research and provide responses to all communications from regulators, coordinating with Code F management as necessary.

(3) Periodically review GRC environmental programs for compliance according to GLWI-FE-8550.1, GRC EMS Internal Environmental Compliance Evaluations.

2.1.9 OCOMM shall:

a. Receive all communication from the media and the public and responds to the media and public.

b. Direct environmental questions and comments to the EMO for guidance.

2.1.10 The Legislative Affairs Officer shall:

a. Receive all communications from elected officials and responds to elected officials.

b. Direct environmental questions from elected officials to the EMO for guidance.

2.1.11 The Talent Services Branch shall maintain appropriate documents and records for the

maintenance of training programs and determination of completion of training for NASA civil servant employees.

2.1.12 Office of Protective Services shall maintain the GRC Emergency Preparedness Plan (EPP) and review the EPP after each exercise or actual event and update, if necessary.

2.1.13 All Supervisors (civil servant and support service contractor):

a. May provide resources to support and improve GRC EMS activities.

b. Shall:

(1) Instruct employees to follow published procedures for applicable activities that may have an environmental impact.

(2) Measure employee competence against requirements stated in a job or position description during regular performance evaluations. At that time, any additional training needs may be identified.

(3) Ensure all staff members with GRC EMS responsibilities are trained, aware, and competent.

2.1.14 All Civil Servant and Contractor Employees:

a. Shall:

(1) Understand the environmental aspects and impacts of their operation and follow developed proedures to mitigate enviromnetal impacts

(2) Attend and/or complete necessary training, including annual NASA GRC EMS training.

b. May support other EMS activities, when applicable.

2.2 Competence, Training and Awareness, and Environmental Awards

2.2.1 Competence, Training and Awareness

a. Required competencies that need to be demonstrated through on-the-job training are documented through the System for Administration, Training, and Educational Resources for NASA (SATERN) for NASA civil servant employees.

b. Onsite support service contractor employee training records shall be maintained by the individual contractor organization. Contract supervisors are responsible for ensuring that all required training of their employees is completed.

c. Evaluation of the completion of environmental-related training for all GRC personnel who need such training shall be a joint effort between Talent Services Branch and EMO. This does not

replace the requirements for supervisors to ensure that all of their employees complete training needs identified for each person.

d. The following documents provide additional guidance on competence, training, and awareness at NASA GRC:

(1) GLP-QS-8715.1-2, GRC Safety Manual Chapter 2 – Safety and Health Training and Certification.

(2) GLPR 3410.1, On-the-Job Training (OJT) Documentation.

2.2.2 Environmental awards may be given as part of the employee suggestion award program at GRC. This program is managed by the GRC Human Capital Office.

2.3 Communications

2.3.1 The Center has developed internal and external communications procedures for meeting its EMS needs. These procedures are implemented to ensure prompt responses to internal and external inquiries.

2.3.2 Internal Communications Process

a. The Center's priority environmental aspects, environmental objectives and targets, and the EMS are communicated to GRC personnel through the following platforms, as appropriate:

(1) Internal newsletters

(2) E-mail

(3) Posters

(4) Bulletins posted on both Inside Glenn and official Center bulletin boards

(5) Employee suggestion program through the Corrective and Preventive Action Reporting System (CPARS)

(6) Special events

(7) The EMS Website

b. The traditional flow of information from one management level to the next is appropriate and shall be used for certain environmental information.

2.3.3 External Communications Process

This process is designed to promote communication of environmental issues to external stakeholders, including elected officials and to receive, consider, and respond to inquiries from the public, media, special interest groups, and regulatory agencies.

2.3.4 General Public Communications

a. The Center shall respond to public inquiries or requests on a case-by-case basis.

b. OCOMM is the focal point for coordinating responses to all public inquiries. The EMO shall support the OCOMM as needed, in providing responses to puplic inquireies.

c. All contacts shall be documented to include the identity of the contact, the date and nature of the inquiry, and a summary and date of the response.

d. Records of these contacts shall be maintained by the OCOMM.

2.3.5 Elected Officials, Media and Special-Interest-Group Communications

a. The EMO shall support all contacts by the media or special interest groups with the OCOMM, as well as contacts from elected officials with the Legislative Affairs Officer.

b. Depending on the type of inquiry, either the OCOMM or Legislative Affairs Officer will respond to the inquiry, with guidance from the EMO.

2.3.6 Regulatory Agency Communications

Program managers within the EMO maintain routine communications with regulatory agencies. If any of the following inquiries are received, EMO management shall be contacted:

a. Notification from a regulator regarding a possible notice of violation or other enforcement action.

b. Notification from a regulator regarding the need for follow-up on a complaint from either an external or internal source.

c. Notification from a regulator regarding public hearings on proposed or final actions.

2.4 Documentation and Control of Documents

2.4.1 This GLPR 8553.1, NPR 8553.1, GLM-FE-8500.1, and Appendix C of this document provide a complete list of Center EMS documentation. The BMS and EPM documents referred to in this directive constitute GRC procedures for EMS documentation and document control. For reviews and revisions of EMS procedures and EPM chapters, GRC follows the BMS document control policy and procedures in GLPR 1410.1, Glenn Directives Management. More frequent reviews and/or revisions may be undertaken if the need is identified based on changing circumstances or changes in regulations. Controlled copies of the documents are in electronic form in the BMS Library. These documents are made available to employees and others who may need them to carry out their GRC EMS duties. Obsolete documents are removed from circulation immediately.

2.4.2 Whenever documents of external origin relevant to environmental programs are specified, the program managers are responsible for maintaining access to the most current version of each

specific document. When applicable, external documents are listed in the appropriate chapter of the GRC EPM (GLM-FE-8500.1).

2.5 Operational Control

2.5.1 The operational control procedures are designed to address all activities, products, and services that result in priority environmental impacts.

2.5.2 For specific operational control documents, refer to the GRC EPM (GLM-FE-8500.1).

2.6 Emergency Preparedness and Response

2.6.1 The GRC uses the EPP to prepare for, and respond to, emergencies associated with its normal or emergency operations. These procedures are kept current through updates following each major incident involving procedure implementation. The emergency preparedness and response procedures and plans at GRC can readily identify, prevent, and mitigate EMS emergencies. Drills and exercises are managed by the OPS. The EPP is reviewed after each exercise or actual event and updates made, if necessary.

2.6.2 All managers and employees shall follow these procedures. For specific environmental emergency preparedness and response topics at either Lewis Field or Neil A. Armstrong Test Facility, refer to the appropriate Annex in the EPP.

CHAPTER 3. Checking

3.1 Monitoring and Measurement

3.1.1 The GRC EMS representative and EMO program managers verify that operational control procedures are being followed. This verification is achieved through observation of GRC EMS activities, interviewing employees implementing GRC EMS, and reviewing GRC EMS records. Where required, monitoring and measurement requirements are defined in individual EPM chapters and in environmental permits. All equipment used to monitor the key characteristics of operations that can have a priority environmental impact shall be calibrated in accordance with NASA-STD-8739.12. Field instruments are checked against standardized materials prior to use.

3.1.2 The monitoring and measurement methods are designed to be:

a. Simple, flexible, and effective in producing reliable data.

b. Supportive in yielding objective and verifiable environmental performance indicators consistent with GRC policies.

c. Communicated to EMO staff and stakeholders.

3.1.3 Each management program developed to achieve specific environmental objectives and targets shall use defined metrics to measure progress toward achieving each goal.

3.2 Evaluation of Compliance

The NASA Headquarters (HQ) Environmental Management Division, as directed by NPR 8553.1, conducts thorough compliance evaluations of each Center's environmental programs. The Environmental Functional Review (EFR) serves as a key evaluation of compliance for GRC. In addition to strict regulatory requirements, the EFR also evaluates GRC's compliance to all other applicable requirements called out in each chapter of the EPM, as well as requirements specified by NASA. Between EFRs, periodic internal compliance evaluations will be conducted as specified in GLWI-FE-8550.1 and by outside regulatory agencies or other third party.

3.3 Nonconformity, Corrective Action, and Preventive Action

The nonconformity, corrective action, and preventive action procedure used at GRC is defined in GLP-Q-1280.2, Corrective and Preventive Action. The CPARS is a GRC system for nonconformities and associated corrective and preventive action follow-up. Records that are generated relating to corrective and preventive actions are maintained according to GLP-Q-1280.2. Refer to GLP-Q-1280.2 for requirements related to the CPARS. Other corrective action systems, such as the Safety, Health, and Environmental Tracking System (SHEtrak) may be used to log and track environmental nonconformities and noncompliance issues when applicable, such as internal compliance findings and regulatory agency findings.

3.4 Control of Records

The GRC uses procedures described in Chapter 5 of NPR 8553.1, the record retention procedure as stated in GLPR 1440.1 and GLPR 1420.1, to manage its EMS records. A list of EMS records is maintained by the EMO using the Organizational Records Inventory Tool. The Environmental Programs Manager and EMO program managers are responsible for making sure that these procedures are followed. They review EMS records annually to ensure they are legible, complete, and traceable to a specific operation.

3.5 Internal Audit

The EMS internal audit program consists of the NASA HQ EFR described in Chapter 5 of NPR 8553.1, as well as local internal audits to measure conformance to the EMS standard referenced in NPR 8553.1 and GLPR 8553.1. All internal EMS audits, except for those conducted by NASA HQ as part of an EFR, are scheduled and managed by the EMO. Records of the local EMS internal audits are maintained according to GLPR 1440.1.

CHAPTER 4. Management Review

4.1 The performance of the GRC EMS shall be reported to the Mission Support Council (MSC) through management reivews on a regular basis.

a. Records of decisions and actions from these management reviews must be maintained. Each review shall include portions of the EMS items listed below.

b. Over the course of a year, all items noted below shall be covered at least once to determine adequacy, suitability, and effectiveness.

4.2 The EMS input items for management reviews shall include:

a. Results of internal audits.

b. Evaluations of compliance with regulations.

c. Communication(s) from external interested parties, including complaints.

d. The environmental performance of GRC.

e. The extent to which objectives and targets have been met.

f. Status of corrective and preventive actions.

g. Follow-up actions from previous management reviews.

h. Changing circumstances, including developments in regulations related to GRC's environmental aspects.

i. Recommendations for improvement.

4.3 The outputs from the management review shall include any decisions and actions related to possible changes to environmental policy, objectives, targets, and other elements of the EMS, consistent with the commitment to continual improvement.

Appendix A. Definitions

Competence. A body of skills (training, education, and experience) defined by the organization as appropriate for all personnel whose work might create a priority environmental impact.

Continual Improvement. A recurring process of enhancing the EMS in order to achieve improvements in overall environmental performance consistent with NASA's and GRC's environmental policy and mission.

Corrective Action. An action taken to eliminate the cause of a detected nonconformity.

Declaration of Conformance. An assessment by the appropriate senior manager who is accountable
for implementation of the EMS and ensures that an EMS is fully implemented as established by requirements of the NPR 8553.1. The responsible manager shall ensure that the assessment includes results of a formal EMS audit by a qualified party outside the control or scope of the EMS.

Document. Any information and its supporting medium (such as a written procedure or guideline) that requires regular maintenance or review.

Environmental Management System (EMS). A system that incorporates people, procedures, resources, responsibilities, and work practices in a formal structure to address the development, implementation, achievement, and review of the environmental policy.

EMS Record. Record that has been identified as pertaining to the EMS.

GRC EMS Representative. The NASA individual who manages the GRC EMS and is responsible for reporting to senior management and NASA HQ on EMS performance, results of functional assessments, audits, and management reviews.

Environment. The surroundings in which an organization operates, including air, water, land, natural resources, flora, fauna, humans, and their interrelation.

Environmental Aspects. The elements of NASA's activities, products, or services that can interact with the environment. The Agency defines the various environmental aspect categories in NPR 8553.1.

Environmental Functional Review. Comprehensive, systematic, and documented verification (led by a HQ team) of a functional area whereby evidence is obtained and evaluated to ensure that environmental activities are conducted in accordance with statutory, regulatory, and fiduciary responsibilities, including the requirements of NPR 8553.1.

Environmental Impact. Any change to the environment, whether adverse or beneficial, wholly or partially, resulting from NASA's activities, products, or services.

Environmental Objective. An overall environmental goal, arising from the environmental policy, that NASA sets for itself to achieve, and which is quantified where practicable.

Environmental Performance. Measurable results of the environmental management system, related to NASA's control of its environmental aspects, based on its environmental policy, objectives, and targets.

Environmental Policy. A statement by NASA of its intentions and principles in relation to its overall environmental performance, which provides a framework for action and for the setting of its environmental objectives and targets.

Environmental Target. Detailed performance requirement, quantified where practicable, applicable to NASA, that arises from the environmental objectives and that needs to be set and met in order to achieve those objectives.

External Communication. Any communication between GRC and external interested parties regarding environmental issues. It is meant to address inquiries from external parties comprehensively and systematically.

Interested Party. Interested parties are individuals or groups with an interest in the environmental impacts of GRC's organizations products, activities, or services. These parties include regulators, elected officials, local residents, employees, stakeholders, insurers, customers, environmental groups, and the general public.

Internal Audit. A systematic and documented verification process of objectively obtaining and evaluating evidence to determine whether an organization is conforming to its EMS and for communicating the results of this process to management.

Noncompliance. Failure to meet legal or other requirements.

Nonconformance (or Nonconformity). Nonfulfillment of an EMS requirement.

Operational Controls. Documented procedures that limit adverse impacts to the environment and are needed in order to manage NASA's environmental policy and compliance activities.

Opportunity. Potential beneficial effect.

Preventive Action. An action taken to eliminate the cause of a potential nonconformity.

Pollution Prevention. Use of processes, practices, techniques, materials, products, services, or energy, to avoid, reduce, or control (separately or in combination) the creation, emission, or discharge of any type of pollutant or waste in order to reduce adverse environmental impacts.

Procedure. A specified way to carry out an activity or a process.

Priority Environmental Aspect/Impact. A NASA environmental impact that must be managed to avoid or prevent a serious adverse environmental effect, or create a substantial beneficial effect. Within Federal Government agencies such as NASA, compliance with the NEPA requires that if

"major actions" might impose "significant environmental impacts," then measures for mitigating these adverse impacts must be identified and evaluated. To avoid confusion the NASA EMS uses the term "priority" instead of "significant" when describing environmental impacts.

Record. A document stating results or providing evidence of activities performed.

Regulations. Requirements that the organization is regulated to, or has committed to, meeting. These include local, State, Federal, Office of Management and Budget circulars, Executive Orders, and international obligations (legal). They also include internal standards, agency agreements, presidential initiatives, industry codes or practice, contractual obligations, and nonregulatory guidelines.

Risk. Potential adverse effect of uncertainty.

Appendix B. Acronyms

BMS	Business Management System
CPARS	Corrective and Preventive Action Reporting System
EFR	Environmental Functional Review
EMO	Environmental Management Office
EMS	Environmental Management System
EPM	Environmental Programs Manual
EPP	Emergency Preparedness Plan
GLM	Glenn Manual
GLP	Glenn Procedure
GLPD	Glenn Policy Directive
GLPR	Glenn Procedural Requirements
GLWI	Glenn Work Instruction
GRC	Glenn Research Center
HQ	Headquarters
MSC	Mission Support Council
NEPA	National Environmental Policy Act
NPD	NASA Policy Directive
NPR	NASA Procedural Requirements
OCOMM	Office of Communications
OJT	On-the-Job Training
SATERN	System for Administration, Training, and Educational Resources for NASA
SHEtrak	Safety, Health, and Environmental Tracking System

Appendix C. NASA Environmental Management Documents Cross References to GRC Documents

NPR 8553.1	GRC EMS/BMS Documents Numbers may change, this document is only a guide*	Location of Document
P1	GLPR 8553.1 (P1)	BMS Library
P2	GLPR 8553.1 (P2)	BMS Library
P3	GLPR 8553.1 (P3)	BMS Library
P4	GLPR 8553.1 (P4)	BMS Library
P5	GLPR 8553.1 (P5)	BMS Library
P6	GLPR 8553.1 (P6)	BMS Library
1		
1.1	GLPR 8553.1, (P1, P2)	BMS Library
1.2	GLPR 8553.1 (2.1)	BMS Library
2	GLPR 8553.1, (1.1)	BMS Library, EMS Web page, entrances, and building lobbies
3		
3.1	Aspect/Impact Risk Matrix, GLPR 8553.1 (1.2, 1.4, 2.1, Appendix D), EPM (GLM-FE-8500.1, Glenn Research Center, Environmental Programs Manual), NPR 8533.1 (3.1)	BMS Library and **
3.2	EPM, GLPR 8553.1, (1.3)	BMS Library
3.3	Approved objectives and targets for GRC	**, annual EMS posters, EMS web page
	Process descriptions described annually on Center EMS Objectives and Targets	**
	GLPR 8553.1, (1.4)	BMS Library
	Annual EMS Objectives and Targets Review Spreadsheet	**
4		
4.1	NPR 8553.1 (1.2, 4.1), GLPR 8553.1 (2.1)	BMS Library
	GRC Emergency Preparedness Plan	Emergency Preparedness Office Web site
4.2		
	System for Administration, Training, and Educational Resources for NASA (SATERN)	BMS Library
	GLPR 8553.1, (2.1, 2..2)	BMS Library
	GLP-QS-8715.1.2	BMS Library
	GLPR 3410.1	BMS Library
NPR 8553.1	**GRC EMS/BMS Documents Numbers may change, this document is only a guide***	**Location of Document**

4.3	GLPR 8553.1, (2.3)	BMS Library
4.4	NPR 8553.1 and GLPR 8553.1 (2.4)	BMS Library and **
	GLPR 1410.1, Glenn Directives Management	BMS Library
4.5	GLPR 8553.1 (2.4)	BMS Library
	GLPR 1410.1, Glenn Directives Management	BMS Library
4.6	GLM-FE-8500.1, GRC Enivronmental Program Manual (EPM)	Internet, BMS Library
4.7	GRC Emergency Preparedness Plan	Emergency Preparedness Office Web site
	GRC Emergency Preparedness Plan, Annex Q	Emergency Preparedness Office Web site
5		
5.1	NASA Standard (STD)-8739.12, GLPR 8553.1, (3.1)	BMS Library, NETS, internal web pages, **
5.2	NPR 8553.1, GLPR 8553.1, (3.2), GLWI-FE-8550	BMS Library
5.3	GLP-Q-1280.2, Corrective and Preventative Action	BMS Library
5.4	Organizational Records Inventory tool	Agency Records Management (OCIO)
	GLPR 1440.1, Records Management	BMS Library
	GLPD-1420.1, Forms Management Program	BMS Library
5.5	NPR 8553.1, GLPR 8553.1 (3.5)	BMS Library
6	GLPR 8553.1, (4.1)	BMS Library, internal site **
	GLPR 8553.1, (4.2)	BMS Library, **
	GLPR 8553.1, (4.3)	BMS Library, **

Key

EMO = Environmental Management Office

EMS = Environmental Management System

EPM = Environmental Programs Manual

GLPD = Glenn Policy Directive

GLPR = Glenn Procedural Requirements

GRC = Glenn Research Center

NPR = HQ NASA Procedural Requirements

* = Most of the NPR 8553.1 requirements are met in GLPR 8553.1.

** = Documents are on the shared drive, CD, or EMO official file.

Appendix D. Directorate Risk Matrix

GRC EMS Planning for FY20XX

Directorate Risk Matrix Form

Activity, Product, or Service	Environmental Risk or Opportunity (Description)	Risk (R)/ Opportunity (O)	N, A, E*	Environmental Aspect/Aspect Category	Safety	Natural & Cultural Resources (NCR)	Legal & Regulatory (L&R)	Perform-ance	Reputation & Stakeholder (R&S)	Cost	Schedule	Highest Risk/ Opportunity Score	Probability / Likelihood / Frequency	Risk/ Opportunity Ranking (PID)	Notes / Comments

*** - Enter Condition Code: N= Normal; A= Abnormal; E= Emergency**

SUBMITTED FOR CODE: _____

By: _____ Date _____

Change History

Change	Date	Description/Comments
Basic	04/17/07	Original issue to replace Chapter 1 of the Environmental Programs Manual, "Environmental Management System (EMS)."
A	06/23/09	Updated to reference current Center documents, changes to roles and responsibilities, and revisions to NPR 8553.1.
Change 1	09/28/10	Updated scope statement in Section 1.2.
B	06/28/11	Changed Operations Management Council (OMC) to Mission Support Council (MSC) and revised responsibilities to reflect current practices.
C	01/30/12	Updated organizational responsibilities.
Change 1	6/21/12	Deleted: Office of Strategic Management; Plum Brook Reactor Decommissioning and Lewis Field Asbestos Analysis Laboratory; Clarified Section 5.3 regarding CPARS. In Section 5.5, deleted "internal audit" and replaced with "GLPR 8730.5…" These updates are found on pages 4,5,7,19, and 20.
Change 2	8/24/12	Administrative change: Changed GLPR 8553.1B to GLPR 8553.1C on the page 3.
Change 3	9/27/12	Administrative change 3: deleted the following sentence found in Section 2.2 "The GRC reviews its environmental policy to ensure it is current and appropriate to its operations."
D	3/4/2013	Updated section on Competence and Training and Awareness to more fully align with current Center practices. Other minor edits have also been incorporated into this revision.
Change 1	6/2/2015	Updated P.3 Authority – deleted Executive Order (EO) 13423 and 13514 and replaced with EO 13693.
Change 2	12/8/2015	Deleted references to GLPD 8500.1, added assignment of Chief, EEMO as EMS Representative, updated obsolete C-form references and updated appendices to conform to NPR 1400.1.
Change 3	3/17/2016	Section 5.3 removed the usage of regulatory compliance type CPAR for environmental compliance issues.
Change 4	9/16/2016	Changed the Energy and Environmental Management Office (EEMO) to the Environmental Management Office (EMO) throughout document.

		Updated applicable documents and forms section and directorate/office titles.
Change 5	11/01/2016	Deleted reference to GRC Safety, Health and Environmental Board and added stop work authority for Chief EMO and Environmental Programs Manager. Updated citations and citation format.
E	9/25/2017	Deleted all references to ISO14001:2015 as NASA GRC chose to discontinue ISO14001 Certification on 3/28/17. Included references to NASA GRC's Declaration of Conformance for its EMS as required by NPR 8553.1. Added a statement under Section 5.3 Nonconformity, Corrective Action, and Preventative Action that environmental nonconformites can be tracked within SHEtrak, so as long as they follow guidelines highlighted in GLPR 1280.2. Also, gave responsibility for scheduling and managing internal audits to Code FE, Environmental Management Office under Section 5.5 Internal Audit
F	09/11/2019	Changes include: Incorporate Chapter 1. Scope into Preface; Chapter 2 into new Chapter 1. Policy and Planning. P.4, Addeded/Removed documents per NPR 1400.1, 3.3.1.b (1). Replaced GLPR 1280.2 with GLP-Q-1280.2. P.5, Added statement that measurements of EMS effectiveness are reported to the MSC on a regular basis. Sec. 1.2.3, Added statement that review of environmental findings are incorporated into annual EMS risk matrix review process. Sec. 1.4, Added a statement that annual EMS objectives & targets are presented to the MSC for approval. Sec. 2.1, Reorganized list of organizations and clarified responsibilities of all organizaations involved in NASA GRC's EMS, reflective of requirements in NPR 8553.1 and NPR 1400.1. Sec. 2.1.1, Renamed The GRC Director as The Center Director. Sec. 2.1.3, Added responsibility to Center Directorates appoint EMS Point of Contact. Sec. 2.1.7, Iincluded requirement for GRC EMS Coordinator. Sec. 2.1.8(d), Aadded statement that EMO will conduct periodic compliance evaluations of environmental programs according to GLWI-FE-8550. Sec. 2.1.10, 2.3.5, Changed "Office" to Legislative Affairs "Officer." Sec. 2.1.11, Removed responsibility of HCDD for environmental-based trainings. Sec. 2.2, Removed references to BEHST training

		Sec. 2.2.1, Incorporated statement on employee competence in 2.2.1 into responbility of supervisors, 2.1.13(c). Sec. 2.3.2, Incorporated statement on managers instructing employees to follow published procedure on activites that have environmental impact under Sec. 2.1.13. Sec. 2.3.4, Clarified statement that Center will respond to public inquires or requests on a case by case basis. Sec. 2.3.4, Changed responsibility of supporting external communications with OCER from Chief, EMO to EMO. Sec. 2.4 and 2.5, Combined Documentation & Control of Documentation. Sec. 3.2, Added reference to GLWI-FE-8550, EMO Internal Environmental Compliance Evaluations, as well as compliance audits conducted by outside regulatory agencies and third parties. Sec. 3.3 ,Added that compliance and regulatory agency findings will be recorded using SHEtrak. Sec. 3.5, Removed reference to GLPR 1280.1. Sec. 4.1, Deleted statement that MSC conducts Center-level BMS reviews according to GLPR 1280.1; GLPR 1280.1 only applicable to QMS management reviews. Sec. 4.1, Added statement that performance of the GRC EMS shall be reported to MSC through management reivews on a regular basis. Appendix C, Updated EMS Cross References. Appendix D, Updated Directorate Risk Matrix form. Deleted definitions in Appendix A that are not referenced in the document. Other minor clarifications and edits to the document as needed, including the deletion of statements that were redundant or had already been stated in the document.
Change 1	06/28/2021	Administrative changes include: • Updated Plum Brook Station to Armstrong Test Facility in Sections P.2 Applicability and 2.6 Emergency Preparedness and Response. • P.3 Authority - Updated new Executive Orders • Appedix A: Added two new definitions per newly revised NPR 8553.1 • Appendix D: Updated Directorate Risk Matrix to meet word definitions in newly revised NPR 8553.1. • Updated link to new BMS Library SharePoint site
Change 2	04/24/2024	Administrative Change: Extend expiration date 1 year from 9/11/2024 to 9/11/2025 to complete substantive changes per GLPR 1410.1
Change 3	06/04/2024	Administrative Change: Updated organization name from “Facilities, Test, and Manufacturing” to “Facilities, Test and Center Operations”
Change 4	07/09/2025	Second Extension to synchronize with pending updates to authority NPD/NPR. Agency possibility of canceling NPR and updating NPD. Removed revoked Executive Orders (EO) from Authority Documents: EO 13990 and EO 14008 were revoked by EO 14148 Updated to meet formatting requirements of GLPR 1410.1

Change 5	09/10/2026	Administrative change to extend expiration date 1 year to avoid unnecessary revision activity during the Agency's comprehensive directive assessment. The authority document, NPR 8500.1, remains effective until April 2028. Minor updates: Office names (Human Resources changed to GRC Human Capital Office) GLP-QS-8715.1-2 chapter title

***Include all information for each revision. Do not remove old revision data. Add new rows to table when space runs out by pressing the tab key in the last row, far right column.*