



Ames Procedural Requirements

APR 8553.1

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PREFACE

P.1 PURPOSE

a. This NASA Ames Procedural Requirement (APR) describes responsibilities and procedures for implementing the NASA Ames Research Center (ARC) Environmental Management System (EMS). The ARC EMS implements the APD 8500.1 and is required by NASA Procedural Requirement (NPR) 8553.1. The Ames EMS provides a systematic framework for identifying, prioritizing, and managing environmental risks and opportunities associated with Ames mission and operations activities with the objective of improving environmental performance and meeting applicable compliance and other requirements.

P.2 APPLICABILITY

a. This directive is applicable to ARC, civil service and contractor staff and tenant staff at ARC and any facilities at Moffett Field with environmental elements over which ARC has responsibility, control or influence.

b. This directive applies to contractors, grant recipients, tenants, resident agencies or parties to agreements to the extent specified or referenced in the appropriate contracts, grants, or agreements.

c. 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 an expected outcome, and "are/is" denotes descriptive material.

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

P.3 AUTHORITY

- a. NPD 8500.1, NASA Environmental Management.
- b. NPR 8553.1, NASA Environmental Management System.
- c. APD 8500.1, NASA Ames Research Center Environmental Policy.

P.4 APPLICABLE DOCUMENTS AND FORMS

- a. NPR 1441.1, NASA Records Management Program Requirements
- b. APR 1440.1, NASA Ames Research Center Records Management Program Requirements.
- c. APR 1601.4, NASA Ames Research Center Emergency Operations Plan.
- d. APR 8500.1, Ames Environmental Procedural Requirements.
- e. NASA Sustainability Report and Implementation Plan (SRIP) 2019.¹

¹ SRIP: <https://www.sustainability.gov/pdfs/nasa-2019-sustainability-plan.pdf>

P.5 MEASUREMENT/VERIFICATION

- a. Verification of conformance to requirements in this directive are measured through Center and Responsible Organizational management reviews, self-assessments, and subsequent analysis and reports of conformance to requirements, as well as periodic internal audits.
- b. The Ames EMS will be audited on a three-year cycle. During years one and two, the Environmental Management Division will perform an internal management review of the EMS. During year three, NASA Headquarters (HQ) will perform the audit as part of the NASA HQ Environmental and Energy Functional Review (EEFR).
- c. Metrics associated with this APR are established and tracked as part of the NASA Scorecard. Additional metrics may be maintained.

P.6 CANCELLATION

- a. APR 8553.1, Ames Environmental Management System, dated May 16, 2013.

Eugene Tu
Director

DISTRIBUTION STATEMENT:

Internal and external distribution.

CHAPTER 1 CONTEXT OF THE ORGANIZATION

1.1 The Organization and Its Context

The NASA Ames environmental management strategy follows and supplements the strategy that is documented in NPD 8500.1 and NPR 8553.1. It implements APD 8500.1 and provides a continual improvement framework for planning, implementing, checking, and correcting environmental management requirements throughout the Center, including those documented in APR 8500.1.

1.2 Scope of the EMS

The scope of the ARC EMS is documented in the Environmental Document Library, or successor, including NASA, contractor, tenant and other entities that are determined to be covered by the EMS by the Environmental Management Division in collaboration with Center Management.

CHAPTER 2 LEADERSHIP, ROLES, AND RESPONSIBILITIES

The purpose of this section is to specify local roles, responsibilities, and authorities, in addition to those specified in NPR 8553.1 for implementing and maintaining the EMS. The role of the NASA Ames Environmental Management Division (EMD) is to implement and advise others on the implementation of requirements identified in NPD 1000.3, NPD 8500.1, APD 8500.1, APR 8500.1, and APR 8553.1.

2.1 Ames Green Council shall:

a. Serve as a forum for:

- (1) Facilitating implementation of applicable Federal, State, and local requirements, including NASA policies and procedures for environmental quality and energy and water efficiency and conservation (including the NASA Sustainability Report and Implementation Plan (SRIP)).
- (2) Identifying barriers and opportunities for achieving goals without adversely impacting mission.
- (3) Facilitating professional development for example, by participating in related government-wide and Agency meetings, such as Energy, Transportation, and Sustainability meetings, site visits, seminars, and available NASA training.
- (4) Fostering employee awareness, for example, by identifying speakers, celebrating such events as Energy Month and Earth Day, commenting on draft outreach materials, making nominations to NASA award programs, and recommending training.
- (5) Commenting on proposed Agency-wide efforts to achieve SRIP goals.
- (6) Coordinating responses to NASA Headquarters annual data calls, unfunded project lists, and annual consumption/cost information, etc.

b. Serve as the Center Cross-Functional EMS Team required by NPR 8553.1 by:

- (1) Assisting with internal and external audits and inspections, reviewing root cause analyses and providing organizational support for corrective actions, including providing decisions and support for systemic, Center-wide issues or issues that have been escalated due to a lack of corrective action.
- (2) Providing expert input to the EMS risk ranking process to review impacts and aspects and determination of high priority environmental aspects.
- (3) Providing review, input and organizational support for environmental management plans to minimize the impact or risk of high priority environmental aspects.
- (4) Communicating environmental requirements to organizations and communicating environmental issues back to the Council.
- (5) Providing input and review for the annual senior management review of the Ames Environmental Management System.

2.2 Center Management including Organizational Directors, Division Chiefs, Branch Chiefs, Section Heads, Supervisors and Managers, and Contracting Officer's Representatives (CORs) shall:

- a. Provide representatives as requested to participate in the Ames Green Council and encourage participation of staff with relevant knowledge and work responsibilities in environmental communities of practice.
- b. Facilitate internal and external audits and inspections as requested.
- c. Ensure all nonconformities are addressed at the organization's senior management level, meeting the requirements of NPR 8553.1, section 8.1, and communicating within 30 days to the Ames EMS Representative the root cause of the noncompliance or nonconformity, corrective and preventive actions, or plans, in cases where the action will take longer than 30 days.
- d. Communicate the root cause and corrective and preventive actions, plans, and statuses with the Ames EMS Representative.
- e. Participate in the development of and support implementation of environmental management programs for high and medium priority environmental aspects.
- f. Evaluate proposed contracts, grants, or agreements in consultation with EMD to determine if some or all of the activities will be within the scope of the ARC EMS and if they may have impacts to Ames, including EMS and other environmental requirements, that require controls and limits be established.
- g. When a contract, grant, or agreement is determined to be in the scope of the EMS and activities from that agreement or commitment may have an environmental impact, consult with the EMD and ensure that sufficient controls and limits are part of the agreement, including requirements for training, competence, and compliance.
- h. Review and provide comments to the ARC Environmental Management Division on ARC environmental information, policy, requirements, and guidance.
- i. Ensure that staff and contractors and tenants and partners in the scope of the EMS receive required competence and awareness training.
- j. Maintain documented information required by NPR 8553.1, section 4.4.1, for listed items and operational controls specific to an organization's activities, and tenancy agreements, e.g. efficient fleet management, emergency response, energy and water consumption, solid waste management, sustainable facilities, controls on activities related to high priority environmental aspects.
- k. Follow the requirements of NPR 8553.1, section 5.1, to manage emergency preparedness and response within the scope of the Ames EMS, including:
 - (1) Ensuring adequate training is provided and taken,
 - (2) Developing, implementing and testing plans and procedures for emergency response,
 - (3) Testing and reviewing plans and procedures and documenting the resulting test results and lessons learned and revising the plans and procedures.
- l. Maintain Environmental Management Plans to achieve targets and objectives for high priority environmental aspects.

- m. Provide copies of, or otherwise make available for inspection, EMS records under their control, unless legally restricted, to the Ames EMS Representative and audit or assessment team for purposes of self-assessments, internal EMS reviews, and external audits.
- n. Establish and maintain procedures for measuring environmental performance and the effectiveness of the EMS per NPR 8553.1, section 6.1, including: collecting and providing required monitoring and measurement data to the EMD and maintaining equipment and calibration of equipment used for monitoring.

2.3 The Director of Center Operations, as the senior Center official responsible for providing executive and functional leadership for environmental management, shall:

- a. Chair the Ames Green Council.
- b. Facilitate briefings by the ARC EMS Representative to the Center Director and ARC Executive Council for the EMS Management Review no later than September 30 of each year.
- c. Serve as the Center Sustainability Officer (CSO) representing the Center to the NASA Senior Sustainability Officer (SSO).
- d. Ensure that the Center EMS Representative has the responsibilities, resources, and authority needed to implement and maintain an effective Center EMS.
- e. Periodically review the Center EMS for status and viability and, if appropriate, lead the assessment, analysis, and preparation of environmental matters to be considered by the Center Director and Center Executive Council.
- f. Monitor implementation of recommendations of the Center Executive Council related to the Center EMS across all Directorates and relevant tenants.
- g. Develop a Declaration of Conformance of the Center EMS for signature by the Center Director unless Ames is certified by an external organization to have an appropriate EMS in place.
- h. Champion the NASA sustainability goals as published in the Five-Year Sustainability Plan.

2.4 The Chief of the Environmental Management Division, as the Center EMS Representative, shall:

- a. Maintain the ARC environmental policy, compliance obligations, other environmental requirements, and guidance.
- b. Determine and document the scope of the ARC EMS as required by NPR 8553.1, working with other ARC organizations and Center Management to confirm inclusion or exclusion of any contractor, tenant or other partner.
- c. Establish the Ames Green Council with civil servant members at the Division and Branch Chief level representing organizations whose operations affect environmental aspects or have support roles with the management leads for the SRIP goals as core members, for the purpose of providing a forum for involvement in the EMS and SRIP goals, communicating changes to their organizations and bringing feedback to the EMD and making recommendations for improvement.
- d. In coordination with the CSO and the members of the Ames Green Council, participate in and brief other forums, such as the Ames Executive Council, Ames Institutional Tag-up, Ames Facilities Utilization Review Board, and Ames Executive Safety Council, as needed.

- e. In coordination with the CSO and members of the Ames Green Council, brief the Center Director and Ames Executive Council for an EMS Management Review no later than the end of each fiscal year, as required in NPR 8553.1.
- f. Foster communities of practice and teams to improve the effectiveness of Ames' environmental actions, e.g., the Water and Energy Team.
- g. Establish, implement and maintain procedures to communicate the ARC EMS and other environmental requirements to persons working for or on behalf of the Center as well as those outside the Center.
- h. Make the ARC environmental policy available to the public at <http://environment.arc.nasa.gov>.
- i. Maintain documented information required by NPR 8553.1, section 4.4.1, with the exception of documentation for activities within the scope of another organization (e.g., efficient fleet management, emergency response, energy and water consumption, solid waste management, sustainable facilities, and operational controls specific to an organization's activities, and tenancy agreements).
- j. Identify activities and organizations within the scope of the EMS whose work affects environmental performance or compliance obligations and has training that is mandated or required for competence.
- k. Provide awareness training.
- l. In cooperation with organizations responsible for activities with high-priority environmental aspects, establish and maintain the objectives and targets for those high-priority environmental aspects.
- m. Maintain EMS and compliance records listed in NPR 8553.1, Appendix C, in accordance with APR 1440.1 and NPR 1441.1.
- n. Escalate repeat findings of nonconformity or noncompliance, after corrective actions are taken, to Center management through the Environmental Management Division Chief and Director of Center Operations.
- o. Maintain EMS metrics in appropriate databases, e.g. NASA Environmental Tracking System (NETS) and FedCenter.gov.
- p. Document records of declaration of conformance assessments, Environmental Self-Assessment (ESA) inspections, internal EMS reviews, and external audits and inspections in the Environmental Document Library (EDL), and in the appropriate findings corrective action tracking system.
- q. Establish and maintain an Ames EMS Document Matrix.
- r. Utilize the CDMS for control of Ames Policy Directives and Ames Procedural Requirements.
- s. In coordination with the Center Records Manager, and cognizant Center managers, utilize the EDL to store EMS records.
- t. In cooperation with Center management, establish and maintain procedures for measuring environmental performance and the effectiveness of the EMS per NPR 8553.1, section 6.1.
- u. Submit documents to Federal and NASA electronic databases, to the extent these are available, e.g., FedCenter.gov and the NASA National Environmental Policy Act document library.
- v. Perform Internal Environmental Self Assessments and support triennial NASA HQ Environmental and Energy Functional Reviews assessing all areas of compliance in a three year period.

- w. Perform Internal Audits of the ARC EMS in years when there is not a NASA HQ Environmental and Energy Functional Review including an EMS Audit.
- x. Provide assistance in drafting the Declaration of Conformance.

2.5 The Occupational Safety, Health, and Medical Service Division

The Chief of the Occupational Safety, Health, and Medical Service Division shall maintain environmental training records for environmental training listed in the NASA Ames Research Center Safety, Health and Environmental Training Catalog.

2.6 The Chief of the Facilities Engineering and Real Property Management Division

The Chief of the Facilities Engineering and Real Property Management Division, in coordination with the Ames EMS Representative, shall document operational controls, including applicable legal requirements, metrics, training, and communication, for energy and water consumption, solid waste management and sustainable facilities.

2.7 The Chief of the Ames Acquisition Division

The Chief of the Ames Acquisition Division, in coordination with the Ames EMS Representative, shall document operational controls, including applicable legal requirements, metrics, training, and communication, for sustainable acquisition.

2.8 The Chief of the Facilities Engineering and Real Property Management Division

The Chief of the Facilities Engineering and Real Property Management Division, in coordination with the Ames EMS Representative, shall document operational controls, including applicable legal requirements, metrics, training, and communication, for energy and water consumption, solid waste management and sustainable facilities.

2.9 The Chief of the Ames Logistics and Documentation Services Division

The Chief of the Ames Logistics and Documentation Services Division, in coordination with the Ames EMS Representative, shall document operational controls, including legal requirements, metrics, training, and communication, for efficient fleet management and for solid waste management activities within the scope of the Division's responsibilities.

2.10 The Chief of the Ames Protective Services Division

The Chief of the Ames Protective Services Division, in coordination with the Ames EMS Representative, shall maintain documented information required by NPR 8553.1, section 4.4.1 for emergency response procedures, e.g. emergency response procedures and records of emergency response exercises and response to actual emergencies and forward copies to the Ames EMS Representative.

CHAPTER 3 PLANNING

3.1 Risks and Opportunities

The Ames EMS Representative will coordinate with or seek input from the Ames Green Council, management and staff of organizations with environmental impacts, environmental subject matter experts, and other sources in identifying and prioritizing the environmental aspects.

3.1.1 The results of the prioritization the environmental aspects will be recorded in the Environmental Document Library (EDL).

3.2 Compliance Obligations

The NASA Ames Environmental Management Division will maintain procedures required by NPR 8553.1 to identify and document compliance obligations.

3.3 Objectives, Targets, and Programs

The NASA Ames EMS Representative will coordinate development of objectives, targets and environmental management programs (EMP) and Center management will develop and implement them as required by NPR 8553.1 section 3.4

CHAPTER 4 SUPPORT

4.1 Resources

Center management shall provide required resources per NPR 8553.1.

4.2 Competence and Awareness

4.2.1 Competence

- a. Training will be identified and documented by the Environmental Management Division and Center management as required by NPR 8553.1, section 4.2.1.
- b. Training shall utilize the Ames Safety Accountability Program (ASAP), including the employee training survey, to identify training needs for specific individuals, schedule training, and maintain training records.
- c. Contracts and agreements for organizations operating within the scope of the Ames EMS shall require organizations to maintain competence in staff by training, education or experience in dealing with environmental aspects and compliance obligations relevant to their work.

4.2.2 Awareness training will be provided for all personnel working within the scope of the Ames EMS.

4.3 Communication

4.3.1 Communication on environmental aspects shall utilize the means available including internal and external web sites, the Green Council, Centerwide announcements and other meetings or groups such as the Construction Review Board as appropriate.

4.3.2 Required communications, e.g. regulatory inspection responses, shall be documented in the EDL.

4.4 Documented Information

Required documented information shall be recorded in the EDL, CDMS, and other repositories as appropriate.

CHAPTER 5 PERFORMANCE EVALUATION

5.1 Monitoring, Measurement, Analysis, and Evaluation

The Ames Environmental Management Division will have responsibility for establishing procedures for monitoring, measuring and evaluation with responsibilities for measurement distributed to organizations within the scope of the EMS.

5.2 Evaluation of Compliance

Primary means of evaluating compliance are internal Environmental Assessments and NASA HQ Environmental and Energy Functional Reviews.

CHAPTER 6 MANAGEMENT REVIEW

6.1 Review Contents

Management review responsibility and contents shall be as required in NPR 8553.1, Section 7.1 with the additions of information deemed useful in assisting Center management in fulfilling its role of determining continuing suitability, adequacy and effectiveness of the EMS.

6.2 Documented Outputs and Responsibilities

Responsibilities and outputs of the management review shall be as required in NPR 8553.1, section 7.2 and recorded in the EDL or successor repository.

6.3 Declaration of Conformance

The declaration of conformance shall be issued as required in NPR 8553.1, section 7.4 and recorded in the EDL.

CHAPTER 7 IMPROVEMENT

7.1 Nonconformity and Corrective Actions

Organizations with noncompliance or nonconformity are responsible for determining causes and corrective and preventive actions and communicating these to the EMD.

7.2 Continual Improvement

The overall purpose of the ARC EMS is to continue to improve environmental stewardship while enabling and improving the ability of ARC to meet mission requirements sustainably into the future.

APPENDIX A. DEFINITIONS

NASA EMS definitions are located in NPR 8553.1, Appendix A and incorporated by reference. Definitions specific to NASA Ames Research Center are listed in this appendix.

Ames Green Council	A group organized by the EMS Representative and chaired by the CSO and composed of Division and Branch Chiefs, representing organizations whose operations affect environmental aspects or have support roles. The leads for the Sustainability Report and Implementation Plan, Center sustainability plans or specific Environmental Management Plans are core members. They fulfil the requirements for the EMS Cross-Functional Team as required by NPR 8553.1 and provide communication to and from their organizations, review plans and make recommendations for improvement in sustainability and EMS as they are implemented throughout the Center.
Ames Green Team	A group organized and chaired by the EMS Representative or designee and open to Center personnel for the purpose of sharing information about the sustainability and improving environmental stewardship, raising awareness, enhancing professional development, and informing the Ames Green Council.
Ames Safety Accountability Program (ASAP)	A program for managing safety at Ames.
Annual EMS Review	A review of a Center EMS following EMS audit principles and techniques.
Center Sustainability Officer (CSO)	A role of the Director of Center Operations at each Center.
Environmental Document Library (EDL)	A document tracking system used by the Environmental Management Division to track documents.
Environmental Self-Assessment (ESA)	An internal environmental audit of NASA Ames Research Center including an evaluation of compliance with regulatory and other requirements as well as an EMS audit.
High Priority Environmental Aspect	Element of a Center's activities, products, or services that interacts or can interact with the environment and has been determined to be a high priority, using the procedures in NPR 8553.1C sections 3.1 and 3.2 because of serious existing or potential risk to, or opportunity for improvement in: <ul style="list-style-type: none">• Safety,• Natural and Cultural Resources,• Compliance Obligations,• Performance (mission or institutional capabilities),• Reputation and Stakeholder Relations,• Cost and• Schedule.

APPENDIX B. ACRONYMS

EMS acronyms are located in NPR 8553.1B, Appendix B and incorporated by reference. Acronyms specific to NASA Ames Research Center are listed in this appendix.

APD	Ames Policy Directive
APR	Ames Procedural Requirement
ARC	NASA Ames Research Center
ASAP	Ames Safety Accountability Program
CDMS	Center Directives Management System
CSO	Center Sustainability Officer
EDL	Environmental Document Library
EMD	Environmental Management Division at ARC
ESA	Environmental Self-Assessment
NETS	NASA Environmental Tracking System
NRRS	NASA Records Retention Schedule
SSO	Senior Sustainability Officer
SRIP	NASA Sustainability Report and Implementation Plan