**Subject: Environmental and Energy Program Manual**

**Responsible Office: Environmental Management Office, Center Operations Directorate**

## TABLE OF CONTENTS

# PREFACE

## P.1 PURPOSE

a. This Langley Procedural Requirement (LPR) sets forth procedural requirements and responsibilities to ensure that NASA Langley Research Center (LaRC) personnel comply with the Center's environmental and energy management program.

b. LaRC is committed to conducting all operations in a safe, healthful, and environmentally acceptable manner. The Center's environmental and energy policy is to protect and enhance the quality of the environment through compliance with federal, state, and local regulatory authorities; executive orders (EOs); and NASA and LaRC policies and directives. LaRC's environmental and energy policy enables the NASA mission and its stewardship of the Earth through environmental planning, risk mitigation and promotion of sustainable practices.

c. Located in the ecologically sensitive Chesapeake Bay watershed, LaRC is committed to fulfill its mission in a manner that promotes environmental stewardship, sustainability, and continual improvement while mitigating environmentally driven mission risks.

## P.2 APPLICABILITY

a. This LPR applies to all organizational elements of LaRC and to all personnel working in or visiting areas under the administrative control of LaRC, excluding the Hampton/NASA Steam Plant operated by the City of Hampton.

b. 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" denote descriptive material.

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

## P.3 AUTHORITY

a. Farm Security and Rural Investment Act of 2002, as amended, 7 U.S.C § 7901 et seq.

b. Toxic Substances Control Act (TSCA), as amended, 15 U.S.C. § 2601 et seq.

c. Archeological Resources Protection Act of 1979, as amended, 16 U.S.C. § 470aa et seq.

d. Marine Mammal Protection Act of 1972, as amended, 16 U.S.C. § 1361 et seq.

e. Coastal Zone Management Act of 1972, as amended, 16 U.S.C. § 1451 et seq.

f. Endangered Species Act of 1973 (ESA), as amended, 16 U.S.C. § 1531 et seq.

g. Rivers and Harbors Appropriation Act of 1899, as amended, 33 U.S.C. § 401 et seq.

h. Clean Water Act (CWA), as amended, 33 U.S.C. § 1251 et seq.

i. Resource Conservation and Recovery Act of 1976 (RCRA), as amended, 42 U.S.C. § 6901 et seq.

j. National Environmental Policy Act of 1969 (NEPA), as amended, 42 U.S.C. § 4321 et seq.

k. Noise Control Act of 1972, as amended, 42 U.S.C. § 4901 et seq.

l. Clean Air Act (CAA), as amended, 42 U.S.C. § 7401 et seq.

m. National Energy Conservation Policy Act of 1978 (NECPA), as amended, 42 U.S.C. § 8251 et seq.

n. Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA or Superfund), as amended, 42 U.S.C. § 9601 et seq.

o. Superfund Amendments and Reauthorization Act of 1986 (SARA), as amended, 42 U.S.C. § 9662 et seq.

p. Emergency Planning & Community Right-To-Know Act of 1986 (EPCRA), 42 U.S.C. § 11001 et seq.

q. Pollution Prevention Act of 1990 (PPA), 42 U.S.C. § 13101 et seq.

r. Energy Policy Act of 2005 (EPACT 2005), as amended, 42 U.S.C. § 15801 et seq.

s. Energy Independence and Security Act of 2007 (EISA), as amended, 42 U.S.C. § 17001 et seq.

t. National Aeronautics and Space Act of 1958, as amended, 51 U.S.C. § 20113 et seq.

u. National Historic Preservation Act, as amended, 54 U.S.C. § 300101 et seq.

v. Energy Act of 2020, Pub. L. 116-260, div. Z, 134 Stat. 2418 (2020).

w. Environmental Quality, 14 CFR 1216.

x. Occupational Safety and Health Standards, 29 CFR 1910.

y. Basic Program Elements for Federal Employee Occupational Safety and Health Programs and Related Matters, 29 CFR 1960.

z. National Register of Historic Places, 36 CFR 60.

aa. Protection of Historic Properties, 36 CFR 800.

bb. Environmental Protection Agency (EPA), 40 CFR Chapter I.

cc. Council on Environmental Quality (CEQ), 40 CFR Chapter V.

dd. National Emission Standard for Asbestos, 40 CFR 61 Subpart M

ee. Comprehensive Procurement Guideline for Products Containing Recovered Materials, 40 CFR 247

ff. Federal Acquisition Regulation (FAR), 48 CFR Chapter 1.

gg. NASA FAR Supplement, 48 CFR Chapter 18.

hh. Shippers – General Requirements for Shipments and Packagings, 49 CFR 173.

ii. Endangered and Threatened Wildlife and Plants, 50 CFR 17.

jj. NPD 8500.1, NASA Environmental Management.

kk. NPR 4310.1, Artifact Identification and Disposition

ll. NPR 8510.1, NASA Cultural Resources Management.

mm. NPR 8530.1, NASA Sustainable Acquisition.

nn. NPR 8553.1, NASA Environmental Management System.

oo. NPR 8570.1, NASA Energy and Water Management Program.

pp. NPR 8580.1, Implementing the National Environmental Policy Act and Executive Order 12114.

qq. NPR 8810.1, Center Master Planning.

rr. NPR 8820.2, Facility Project Requirements (FPR).

ss. NASA Langley Research Center Annual Standards and Specifications: Erosion and Sediment Control (ESC) & Stormwater Management (SWM).

tt. Virginia Tidal Wetlands Act, 28.2 Code of Va., Chapter 13.

uu. State Water Control Law, 62.1 Code of Va., Chapter 3.1.

vv. Department of Environmental Quality, 9 VAC 15.

ww. State Water Control Board, 9 VAC 25.

xx. Virginia Regulation Concerning Licensed Asbestos Contractor Notification, Asbestos Project Permits and Permit Fees, 16 VAC 25-20-30.

yy. Noise Ordinance, City of Hampton Municipal Code, § 22, 2010.

zz. Noise Ordinance, City of Poquoson Municipal Code, § 34-31, 2010.

## P.4 APPLICABLE DOCUMENTS AND FORMS

a. Guiding Principles for Sustainable Federal Buildings, https://energy.gov/eere/femp/guiding-principles-sustainable-federal-buildings

b. ISO 50001 Ready Navigator.

c. Unified Facilities Guide Specifications, http://www.wbdg.org/ccb/browse_cat.php?c=3.

d. LAPD 1150.2, Councils, Boards, Panels, Committees, Teams, and Groups.

e. LAPD 8500.1, LaRC Environmental and Energy Management.

f. LPR 1710.12, Potentially Hazardous Materials – Hazard Communication Standard.

g. LPR 1710.13, Chemical Hygiene Plan.

h. LPR 1800.1, LaRC Occupational Health Program.

i. LPR 8715.12, LaRC Integrated Spill Contingency Plan.

j. LMS-CP-4759, Acquisition of Hazardous Materials.

k. LMS-CP-8530, Langley Research Center Facility Multi-Media Environmental Audit Process.

l. NF 1707, Special Approvals and Affirmations of Requisitions.

m. LF 44, Hazardous Materials – Procurement, Inventory and Storage Record.

n. LF 163, Waste Material Data Sheet.

o. LF 243, Appointment of Facility Environmental Coordinator(s) (FEC).

p. LF 342, Environmental Finding Tracking Form.

q. LF 408, NASA Langley Research Center Weekly AST Inspection Checklist.

r. LF 410, NASA Langley Research Center Monthly AST Inspection Checklist.

s. LF 461, Environmental Project Planning Form.

t. LaRC Center Operations Directorate (COD) Facilities Engineering Standards. https://fmsswebx.ndc.nasa.gov/standards/cod/

u. LaRC Chesapeake Bay TMDL Action Plan *(Contact the Environmental Management Office at extension 43500 for a copy of this document)*

v. LaRC Back River TMDL Action Plan *(Contact the Environmental Management Office at extension 43500 for a copy of this document)*

w. LaRC Energy and Water Performance Plan. *(Contact the Environmental Management Office at extension 43500 for a copy of this document)*

x. LaRC Environmental Resource Document (ERD). *(Contact the Environmental Management Office at extension 43500 for a copy of this document)*

y. LaRC Environmental Construction Specifications. (*Contact the Environmental Management Office at extension 43500 for a copy of this document)*

z. LaRC Hazardous Material and Hazardous Waste Security Plan. *(Contact the Environmental Management Office at extension 43500 for a copy of this document)*

aa. LaRC Municipal Separate Storm Sewer System (MS4) Program Plan. *(Contact the Environmental Management Office at extension 43500 for a copy of this document)*

bb. LaRC Plug Load Management Plan. *(Contact the Environmental Management Office at extension 43500 for a copy of this document)*

cc. LaRC Seeding Construction Specifications. *(Contact the Environmental Management Office at extension 43500 for a copy of this document)*

## P.5 MEASUREMENT/VERIFICATION

To verify compliance with this LPR, the Environmental Management Office performs multimedia environmental audits of LaRC facilities, as described in chapter 1.2. On an annual basis, LaRC conducts an Internal Assessment of the LaRC Environmental Management Office and associated organizations to ensure conformance with this LPR. Every three years NASA Headquarters performs a comprehensive Environmental and Energy Functional Review of the LaRC Environmental program.

## P.6 CANCELLATION

LPR 8500.1 H, dated September 9, 2019

_____

*Center Associate Director* *Date*

DISTRIBUTION

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

# 1 INTRODUCTION

## 1.1 RESPONSIBILITY

1.1.1 Conducting operations in an environmentally acceptable manner is each employee's responsibility. The success of LaRC's environmental program depends on cooperation and support from all LaRC personnel.

1.1.2 Langley Policy Directive (LAPD) 8500.1, "LaRC Environmental and Energy Management," documents LaRC's environmental and energy policy and includes general responsibilities for LaRC management and organizations regarding the Center's environmental and energy program.

1.1.3 The EMO shall serve as the primary point of contact for environmental correspondence with external stakeholders (e.g., Joint Base-Langley Eustis environmental staff).

1.1.4 Each chapter of this LPR details specific organization and personnel responsibilities according to the various environmental program areas. Any questions concerning the responsibilities or procedural requirements contained in this LPR should be directed to the EMO at extension 43500.

## 1.2 COMPLIANCE

1.2.1 Failure to fully comply with the requirements of this LPR could result in federal or state regulatory action requiring substantial expenditure of NASA resources and possibly criminal prosecution of the individuals responsible for noncompliance.

1.2.2 Citations and fines for violations of environmental laws and regulations are dependent upon the applicable law and the nature of the violation and can range from civil fines for noncompliance to federal and state criminal indictments for negligent or willful violations, including the withholding or falsification of information.

1.2.3 The Head of the EMO is the delegated cease and desist authority for any operations or activities that, in the professional judgment of the EMO, have an immediate and negative impact on the environment or that jeopardize the Center's compliance with permit requirements and applicable environmental regulations.

1.2.4 To ensure compliance with federal, state, and local environmental regulations, the EMO conducts regular multimedia environmental audits of LaRC facilities in accordance with LMS-CP-8530, "Langley Research Center Facility Multi-Media Environmental Audit Process."

1.2.5 The EMO will routinely inspect projects to ensure compliance with federal, state, local, and Center regulations and policies; approved project-specific plans and drawings; LF 461, "Environmental Project Planning Form" comments; and the most

current version of the LaRC Environmental Construction Specifications and the Environmental and Energy Facilities Engineering Standards. The EMO can issue corrective action notices that shall be addressed in an appropriate manner with the project.

1.2.6 When environmental information must be communicated to all Center personnel, the EMO will post an article on the LaRC intranet homepage.

# 2 ENVIRONMENTAL MANAGEMENT SYSTEM

## 2.1 GENERAL

2.1.1 The purpose of this chapter is to provide information on the applicable requirements and procedures related to the Environmental Management System (EMS) at LaRC.

2.1.2 LaRC's EMS provides a systematic approach for evaluating and addressing the Center's most significant environmental impacts and risks, as well as potential benefits.

2.1.3 The focus of the EMS is to establish the necessary personnel structure to facilitate communication throughout all levels of Center management, improve environmental performance, and maintain compliance with applicable environmental legislation, regulations, and other requirements to which LaRC subscribes.

2.1.4 The LaRC EMS provides the mechanism to verify the environmental procedures in the following chapters of this LPR are being effectively implemented and ensures LaRC's environmental procedures are producing the desired results: facilitating mission while also fulfilling environmental stewardship responsibilities.

## 2.2 REQUIREMENTS

2.2.1 NASA Policy Directive (NPD) 8500.1, "NASA Environmental Management" and NASA Headquarters (HQ) establishes NASA's sustainability policy and goals set by applicable regulations and EOs, which are to be addressed by each Center EMS.

2.2.2 NASA Procedural Requirement (NPR) 8553.1, "NASA Environmental Management System" provides the specific guidelines, procedures, and requirements for EMS implementation at NASA Centers.

2.2.3 LaRC's EMS proponent is the Environmental Management Sponsor, who oversees the implementation and maintenance of the program and reports to Senior Management on LaRC's environmental status.

2.2.4 The Environmental Management Sponsor is assisted by the Environmental Management Committee, consisting of personnel from all relevant Center organizations per the charter maintained by COD in accordance with LAPD 1150.2, "Councils, Boards, Panels, Committees, Teams, and Groups."

2.2.5 The EMO contributes environmental expertise and provides significant support to the Environmental Management Sponsor and the Environmental Management Committee.

## 2.3 RESPONSIBILITIES

### 2.3.1 The Center Director shall:

In addition to the responsibilities listed in section 2.1.4 of NPR 8553.1, ensure the Center has a designated Environmental Management Sponsor with the authority and responsibility for implementation of the EMS and Center environmental policy.

### 2.3.2 The Environmental Management Sponsor shall:

a. Provide support and oversight to ensure the development, implementation, and maintenance of the EMS and the Center environmental programs.

b. Provide support and oversight as needed to ensure EMS applicability to the Center's procurements and tenants are incorporated into appropriate contracts and agreements.

c. Act as Senior Management proponent for the Environmental Management Committee and ensure participation of committee members.

d. Ensure the annual assessment of LaRC's environmental programs, progress toward previously established goals, and changes to LaRC's environmental risks.

e. Ensure the development of new environmental goals.

### 2.3.3 The Environmental Management Office shall:

a. Ensure an appropriate EMO employee is designated as the EMS Representative to fulfill responsibilities in accordance with NPR 8553.1.

b. Serve as support staff to the Environmental Management Sponsor, EMS Representative, and Environmental Management Committee during the implementation, operation, maintenance, and continual improvement of the EMS.

c. Serve as the Center's technical experts on environmental issues.

d. Ensure that all required EMS elements are addressed and periodically reviewed by the Environmental Management Sponsor/Environmental Management Committee.

e. Maintain and update documentation of the EMS elements.

f. Incorporate the Environmental Management Committee's recommendations and findings into the LaRC Environmental Program.

g. Evaluate opportunities for implementing sustainable practices, operations, and planning.

### 2.3.4 Environmental Management Committee Members shall:

a. Assist the Environmental Management Sponsor and EMS Representative in the implementation, operation, maintenance, and continual improvement of the EMS in accordance with NPR 8553.1.

b. Identify, prioritize, and assist with implementation of the environmental goals established to address LaRC's environmental priorities.

c. Establish cross-functional communication mechanisms to support EMS initiatives.

d. Serve as the organizations' representatives and act as subject matter experts regarding current and future mission/operations.

### 2.3.5 The Office of Procurement shall:

Work with the EMO as necessary to determine applicability of the Center's EMS and other environmental requirements to LaRC procurements and when applicable, ensure they are included.

### 2.3.6 The Office of General Counsel, Langley shall:

Work with the EMO as necessary to determine applicability of the Center's EMS to tenants, subject to the limitations of tenancy agreements.

### 2.3.7 Center Personnel shall:

Adhere to LaRC's environmental requirements and assist in achieving LaRC's EMS goals.

# 3 ENERGY EFFICIENCY AND WATER CONSERVATION

## 3.1 GENERAL

3.1.1 The purpose of this chapter is to provide information on the applicable requirements and procedures related to energy efficiency and water conservation at LaRC.

3.1.2 It is the objective of LaRC to utilize sound energy and water practices to provide increased energy and water sustainability, reduced maintenance and utility costs, and increased employee awareness through:

a. Utilization of energy and water in an efficient manner throughout all Center operations.

b. Incorporation of all cost-effective energy and water efficiency procedures and upgrades with existing equipment and facilities.

c. Meeting all requirements set by the Federal Government and Agency at the Center level.

d. Implementing an Energy and Water Management Program to accomplish the above objectives and sustain achievements.

e. Monitoring, analyzing, and reporting of energy and water consumption at the Center, building, and equipment level.

## 3.2 REQUIREMENTS

3.2.1 When managing energy and water conservation at the Center, LaRC must comply with the National Energy Conservation Policy Act of 1978 (NECPA), the Energy Policy Act of 2005 (EPACT 2005), the Energy Independence and Security Act of 2007 (EISA), the Energy Act of 2020, as well as other applicable laws and regulations, Executive Orders, and NASA procedural requirements pertaining to energy efficiency, water conservation, and greenhouse gas emissions reduction.

3.2.2 Changes to LaRC building setbacks, building setback schedules and HVAC controls sequences impacting energy consumption shall be reviewed and approved by the Center Energy Manager according to Energy Management Control Systems Standard Operating Procedures. See Table 3.1 for building temperature setback requirements.

## 3.3 RESPONSIBILITIES

### 3.3.1 The Center Director or Designee shall:

Fulfill the responsibilities documented in section 2.3.1 of NPR 8570.1, “NASA Energy and Water Management Program.”

### 3.3.2 The Management Sponsor shall:

a. Act as the Management Sponsor for the Center Energy Efficiency Team (EET) per the charter maintained by COD in accordance with LAPD 1150.2.

b. Support the Center Director in fulfilling the responsibilities assigned to that position, as instructed by the Director.

### 3.3.3 The Center Energy Manager shall:

In addition to the requirements and responsibilities listed in sections 1.2.1 and 2.3.2 of NPR 8570.1,

a. Communicate appropriate energy conservation requirements to LaRC operations and maintenance personnel, such as HVAC schedules, HVAC control sequences, facility temperature setbacks, hot water temperature requirements, and recommendations for lighting controls.

b. Review and confirm that Measurement & Verification (M&V) reports regarding energy conservation measures financed by an Energy Savings Performance Contract (ESPC)/Utility Energy Savings Contract (UESC) accurately generated the guaranteed savings throughout the term of the contract.

### 3.3.4 The Energy Efficiency Team shall:

a. Assist the Center Energy Manager in the implementation of the Energy and Water Management Program in accordance with NPR 8570.1.

b. Identify, prioritize, and implement the initiatives in the Center’s Energy and Water Performance Plan.

c. Establish cross-functional communication mechanisms to support energy and water conservation initiatives.

d. Recommend and implement energy and water conservation projects and practices in their organizations.

### 3.3.5 Facility Coordinators shall:

a. Investigate malfunctioning equipment (e.g., leaks [air/steam/water], overflows, drips) that indicate a waste of energy and/or water and initiate repairs to correct the problem so that unnecessary utility consumption is minimized.

b. Investigate and initiate repairs for building envelope degradation or failure, such as drafts, leaks, poor seals, or holes.

c. Turn off all lighting not required for operations or security. Lights that remain on shall be the minimum required for safety and security requirements.

d. Report excess water usage (1000 gallons/day or more above normal usage levels) to the Integrated Operations Center (IOC) during working hours or to the LaRC Duty Officer after hours at extension 44927, and investigate building for potential leaks if requested by the appropriate LaRC personnel (e.g., IOC, Duty Officer, or Energy Manager).

*e.* Ensure facility temperatures are in accordance with Table 3-1. If temperatures are out of the acceptable temperature range, submit a trouble call and report anomalies to Energy Management Control System (EMCS) personnel at extension 44930.

*Table 3-1*

| | | |
|---|---|---|
| **Heating Season (max. settings)** | Administrative Spaces and Labs | Occupied: 68-70 degrees F<br>Unoccupied: 60 degrees F |
| | Shop Spaces | Occupied: 66-68 degrees F<br>Unoccupied: 60 degrees F |
| | Warehouse Spaces | Not heated unless required for specific needs |
| **Cooling Season (min. settings)** | Administrative Spaces and Labs | Occupied: 74-76 degrees F<br>Unoccupied: 82 degrees F |
| | Shop Spaces | Occupied: 74-76 degrees F<br>Unoccupied: 82 degrees F |
| | Warehouse Spaces | Not cooled unless required for the storage of perishables |

(1) Although climate control systems for mission and communication equipment are exempt from the above settings, energy efficiency shall be considered in the equipment operation.

(2) Unoccupied times apply to nights, weekends, and periods when personnel are not required to be present. In general, LaRC occupied hours are 6 a.m. to 6 p.m., Monday through Friday.

### 3.3.6 Facility Environmental Coordinators shall:

a. Act as an energy and water conservation liaison between Center personnel and the Center Energy Manager, EET members, and the EMO as necessary.

b. Assist the FC in reporting wasteful conditions (e.g. water leaks, exterior lights on during the day, equipment running when not necessary) and ensure that prompt corrective actions are taken to conserve energy and water.

c. Communicate with facility personnel to ensure that energy and water users in the facility understand the procedures to minimize energy and water use at all times.

### 3.3.7 The Office of Procurement shall:

In addition to the responsibilities listed in section 2.3.3 of NPR 8570.1,

a. Ensure compliance and implementation of the acquisition requirements of the Federal Acquisition Regulations (FAR), NASA FAR Supplement, and NPR 8530.1, “NASA Sustainable Acquisition.”

b. Ensure conformance with the requirement to procure energy and water efficient products that are the most life-cycle cost effective.

c. Ensure conformance with the requirements for acquisition of environmentally preferable goods and services including Energy Star, Federal Energy Management Program (FEMP) designated and Water-Sense products.

### 3.3.8 Facility Energy Management Control System Personnel shall:

a. Establish a building heating and cooling schedule designed to minimize the cost of space conditioning.

b. Maintain facility temperatures in accordance with Table 3-1 (section 3.3.5).

c. Establish lighting schedules for buildings with automated lighting controls.

d. Provide energy data to LaRC personnel when requested.

### 3.3.9 Facility Project Managers shall:

a. Coordinate with the EMO early in the project planning stages to ensure project design considers energy and water conservation measures and sustainable design principles. This shall include submitting an LF 461 for each project.

b. Ensure all project designs for LaRC adhere to energy, water, and sustainability requirements set forth in the LaRC Center Operations Directorate Facilities Engineering Standards, including Civil, Architectural, Mechanical, Electrical, and Environmental Standards, as well as governing statutes and EOs.

### 3.3.10 Center Personnel and On-site Contractors shall:

a. Follow the requirements set forth in the “LaRC Plug Load Management Plan.”

b. Contact the Center Energy Manager with ideas or suggestions for energy or water conservation projects.

c. Keep windows and doors closed when buildings/conditioned spaces are being air conditioned or heated.

d. Turn off lighting in unoccupied areas, after working hours/weekends, and when out of the office for more than 15 minutes.

e. Dress for thermal comfort. Approved portable electric space heaters are intended only to temporarily supplement an area's heating needs until a permanent solution can be found to correct the area's heating problem, or as an authorized emergency use measure when a building's normal heating system fails.

(1) Portable electric space heaters are not intended for use as permanent heating appliances.
(2) Use of a portable space heater is permitted only when a space temperature falls below the heating season temperature settings shown in Table 3-1, or unless medically required by the occupant.
(3) Requests for a space heater shall be made to the FC so that a trouble call can be submitted and the issue investigated prior to space heater approval.
(4) Approval for space heaters (both Government purchased and employee-owned) shall be obtained from the LaRC Fire Chief and the Center Energy Manager and comply with established safety requirements and registration procedures.

f. Report wasteful conditions (e.g. water leaks, exterior lights on during the day, equipment running when not necessary) or malfunctioning equipment and ensure that prompt corrective actions are taken to conserve energy and water.

g. Conserve energy by storing food items requiring refrigeration in break room refrigerators rather than using personal compact refrigerators.

(1) All refrigerators are required to have labels indicating their use for either food storage or non-food storage.
(2) Personal refrigerators are acceptable if used to store work-related non-food items or personal medical supplies, but shall be consolidated to the maximum extent possible.
(3) All new refrigerators purchased shall be Energy Star compliant.

h. Incandescent light bulbs are not permitted in any fixture or desk lamp not explicitly indicated as having no acceptable alternative by the Center Energy Manger. Alternatives for incandescent lighting are limited to light emitting diode (LED) lamps.

i. Contact the FC to report facility heating or cooling issues or outages.

j. All adjustment of temperature controls shall be made by the FC and/or Facility EMCS Personnel only, not by Center personnel or on-site contractors.

# 4 PROJECT/PROGRAM PLANNING AND IMPLEMENTATION

## 4.1 GENERAL

4.1.1 This chapter provides information on applicable regulatory requirements and procedures related to environmental impact review of proposed actions conducted at or funded by LaRC.

4.1.2 The procedures included in this chapter are applicable to proposed actions to include construction, rehabilitation, demolition, repair and any other activities associated with the Center's land and infrastructure, as well as research, development and testing activities occurring on Center, off-site, and internationally.

4.1.3 The term "project" is used as a general descriptor in this chapter and includes proposed actions, projects, and programs (local, mission-related, multi-Center and international).

4.1.4 The procedures included in this chapter are applicable to all LaRC employees and contractors who participate in the development, implementation, and management of LaRC's projects.

4.1.5 LaRC's environmental review process applies to the various phases of both facilities and research projects to include conceptual design, construction, operation, or maintenance.

## 4.2 REQUIREMENTS

LaRC must comply with the National Environmental Policy Act of 1969 (NEPA) and EO 12114, "Environmental Effects Abroad of Major Federal Actions," as well as other NASA procedural requirements pertaining to federal project planning and implementation.

## 4.3 TIMING

4.3.1 NEPA environmental review must be initiated at the earliest planning stages of a project such that the review can be completed prior to a commitment of government resources toward implementation of the project, to ensure compliance with federal law.

4.3.2 Commitment of government resources to activities, such as award of task orders or contracts, may occur only after NEPA environmental review of the activity has been completed.

4.3.3 Early coordination with the EMO is critical to ensuring timely completion of the environmental review and documentation process. The following provides a general time estimate to complete the various levels of documentation:

a. Completion of LF 461 review and signed REC (if applicable): 2 to 3 weeks (may take longer for large or complex projects).

b. Preparation of Environmental Assessment (EA) and publishing Finding of No Significant Impact: up to 1 year.

c. Preparation of Environmental Impact Statement (EIS) and issuing Record of Decision: more than 1 year.

## 4.4 ENVIRONMENTAL PROJECT REVIEW AND DOCUMENTATION

4.4.1 LaRC personnel or offices initiating projects are responsible for ensuring that the appropriate documentation is prepared in accordance with the requirements of this chapter, NPR 8580.1, “NASA National Environmental Policy Act Management Requirements,” and other relevant federal environmental laws, regulations, and EOs.

4.4.2 Figure 4-1 provides a general overview of the environmental project review and documentation process at LaRC.

4.4.3 The first step of the process is for the Project Manager/Initiator to submit the LF 461 to the LaRC NEPA Manager early in the project planning process and prior to commitment of government resources toward implementation of the project.

4.4.4 The LF 461 shall be submitted for all projects at LaRC except those included on the Excluded Activities List. The list is maintained by the LaRC NEPA Manager and is updated at least once annually each fiscal year.

*Note: An LF 461 shall be submitted for any project that requires ground disturbance inside or outside of a facility. The LF 461 shall be submitted at least 5 working days prior to project startup (does not apply in emergency situations).*

4.4.5 In the event of an emergency (defined as a situation requiring a response within 24 hours), the Project Manager/Initiator shall submit an LF 461 to the LaRC NEPA Manager as soon as possible but no more than 2 working days following initiation of response activities.

4.4.6 In addition to submitting the LF 461, project documentation shall be submitted, either as an attachment to the LF 461 or provided to the EMO during the review process. The size and scope of the project shall determine the type of documentation required.

4.4.6.1 “Small projects” consist of any LaRC projects (not already covered under the current facility operations and Space Act Agreements) that involve use of hazardous materials or generate waste materials and have the potential to impact the environment, such as: modification to facility operations/infrastructure, release of items to the environment (e.g., balloons, drones, etc.) which will be immediately recovered or returned, payload development, sample return, and adjustments to existing flight operations.

4.4.6.2 “Large projects” consist of on or off-site programs or projects that involve use of large quantities of hazardous materials and generating waste materials (not already covered under the current facility operations and Space Act Agreements), substantial modifications to facility operations/infrastructure, demolition of existing facilities, release of items to the environment (e.g., balloons, drones, autonomous floats, etc.) which may or may not be immediately recoverable or for which recovery may be uncertain, new flight operations or substantial changes to existing flight operations, multi-center, and international actions where LaRC may be the lead or participating Center.

4.4.6.3 Documentation required to be submitted with the LF 461 shall include:

a. <u>For small projects (as described in 4.4.6.1):</u>
   (1) At a minimum, a detailed scope of work or project plan that references any applicable environmental requirements as specified in this LPR, and
   (2) Maps or floor plans (if applicable).

b. <u>For large projects (as described in 4.4.6.2):</u>
   (1) A detailed scope of work or program/project plan,
   (2) Project design plans to include the most current version of the Center Operations Directorate Facility Engineering Standards – Environmental and Energy,
   (3) Project specifications to include the LaRC Environmental Construction Specifications, and
   (4) Maps, floor plans and drawings.
   (5) For research and development activities involving launching of objects (UAS, balloons, aircraft, etc.) the maps must show flight trajectory.

*Note: The most current version of the LaRC Environmental Construction Specifications, and the Center Operations Directorate Facilities Engineering Standards – Environmental and Energy shall be used and shall supersede all other environmental specifications and standards (e.g., UFGS, USACE, etc.) that are currently available.*

4.4.7 The LaRC NEPA Manager shall determine if additional documentation is needed to perform environmental review of the project, and will notify the Project Manager/Initiator.

4.4.8 If the LaRC NEPA Manager determines that the project is covered by a categorical exclusion (CatEx) as defined in 14 CFR Part 1216.304, a Record of Environmental Consideration (REC) may be prepared to document the decision and the environmental requirements that shall be followed throughout the project. Figure 4-2 provides an example of an REC.

4.4.9 The completed REC shall be signed by the LaRC NEPA Manager and the Project Manager/Initiator, with a copy maintained in the project files along with the completed LF 461.

4.4.10 If the LaRC NEPA Manager determines that the project is covered by a CatEx, or is considered to have minimal or no potential to produce an environmental impact and

no further environmental requirements (e.g., permitting, etc.), the EMO may issue a CatEx/No REC. This determination reduces paperwork burden and is typically utilized for small, routine projects.

4.4.11 If the LaRC NEPA Manager determines that the project is not covered by a CatEx and has the potential to produce environmental impacts, an EA will be required.

4.4.12 In some cases during the impact review process, it will become apparent that the action will produce a significant environmental impact. In these cases, an EIS may be required.

4.4.13 Following completion of the LF 461 review, and if applicable EA or EIS, additional project documentation might be required prior to project startup. See section 4.5.2(d).

## 4.5 RESPONSIBILITIES

### 4.5.1 The Center Director shall:

Fulfill the responsibilities documented in section 1.2.6 of NPR 8580.1.

### 4.5.2 The Environmental Management Office shall:

a. Assist the LaRC NEPA Manager in managing the Center's NEPA Program.

b. Review completed LF 461s, project designs, and specification documentation for environmental impact issues.

c. Follow up with Project Managers/Initiators to ensure environmental requirements, such as obtaining permits, employing Best Management Practices (BMPs), performing mitigation, etc. are carried out in accordance with the requirements included in the LF 461, REC, and if applicable, the EA or EIS.

d. In the case of a design-build project, ensure the detailed set of requirements and restrictions (bridging document) includes environmental requirements and that all environmental requirements are addressed at the appropriate design milestone.

e. Participate in project planning and design reviews/meetings as needed.

f. Serve as the point of contact for off-Center environmental compliance coordination activities related to LaRC's projects.

g. Assist with the preparation of environmental surveys and documentation as needed.

### 4.5.3 The LaRC NEPA Manager shall:

In addition to the responsibilities listed in section 1.2.8 of NPR 8580.1,

a. Coordinate EMO review of completed LF 461s and associated project documentation and provide requirements to the Project Managers/Initiators to ensure the project complies with all applicable federal, state, local, and LaRC environmental laws, regulations, and policies.

b. Coordinate with program/project managers to develop budget for any mitigation and/or monitoring requirements.

c. Ensure NEPA documentation is prepared in accordance with NEPA, the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 CFR 1500-1508), and NASA's regulations (14 CFR 1216.3).

d. Coordinate review and distribution of NEPA documents to NASA HQ, federal, state, and local agencies, organizations, interested parties, and the public utilizing electronic media to the maximum extent practical to provide easy access to available NEPA documents.

e. Comply with additional responsibilities listed in section 1.2.7 of NPR 8580.1.

### 4.5.4 Project Managers/Initiators shall:

a. As early as possible in the conceptual design phase of the project and prior to commitment of government resources toward implementation of the project (e.g., contract or task order award), submit the LF 461 to the EMO for review.

b. Notify the EMO of designs and studies performed in support of project planning to ensure appropriate information is addressed in the documents to facilitate environmental review of the project.

c. Ensure that all mitigation and/or monitoring budget requirements are included within the project's programmed budget prior to formal submission of programming documents.

d. Submit project documentation to the EMO as specified in section 4.3.

e. Ensure that the EMO is included in project planning and design reviews/meetings, as needed.

f. Coordinate with the EMO to ensure that all environmental requirements specified in the LF 461, REC, and if applicable EA or EIS (e.g., obtaining permits, submitting a Waste Management Plan [WMP], Stormwater Pollution Prevention Plan [SWPPP], etc.) are satisfied prior to project startup.

   *Note: No work shall begin until all required documentation has been submitted to and approved by the EMO.*

g. Ensure that all work performed at the project site, to include work performed by contractors/subcontractors, complies with the environmental requirements specified on the LF 461 and/or REC.

h. Ensure that all requested environmental project data (e.g., recycling data, project materials usage, permit close out letters, etc.) are submitted to the EMO as specified on the LF 461 and/or REC.

i. If the project scope or location changes during the planning or construction phases of the project, notify the LaRC NEPA Manager.

j. If the project will require preparation of an EA or EIS, ensure project schedule and budget includes preparation of the documentation.

k. If mitigation and/or monitoring is required to reduce environmental impacts associated with the project, ensure project schedule and budget includes carrying out the mitigation.

### 4.5.5 The Office of General Counsel, Langley shall:

Provide reviews for legal sufficiency in accordance with NPR 8580.1. Legal Reviews are obtained prior to submittal to NASA HQ for internal review, prior to submittal to state or federal agencies, and prior to distribution to the public.

### 4.5.6 The Office of Communications shall:

a. Assist the LaRC NEPA Manager and Project Manager/Initiator, as needed, with informing the public about activities and undertakings that may impact the environment and require review through the NEPA process.

b. Serve as liaison between the LaRC NEPA Manager and media outlets, as needed, to ensure public disclosure of the NEPA process.

### 4.5.7 The Office of Procurement shall:

Confirm with the purchase initiator/project manager, via the NF 1707 process, that environmental review is complete prior to the commitment of government resources to activities, such as in awards of task orders or contracts.

Figure 4-1

**Overview of the Environmental Project Review and Documentation Process**

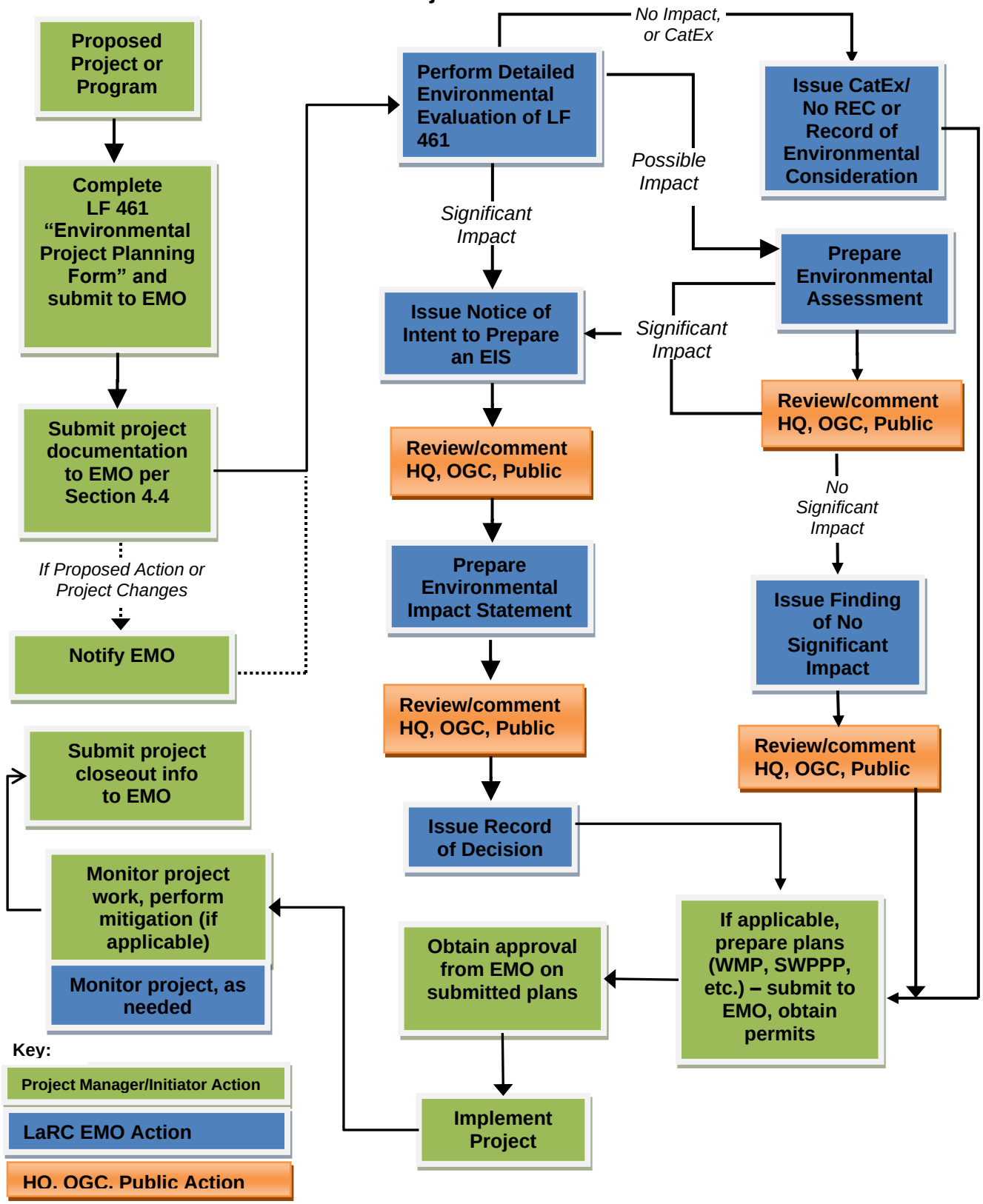


Figure 4-2
NASA Langley Research Center
**Record of Environmental Consideration (Example)**

---

**Project:**

**Description and location of the proposed action:**

**Anticipated date and/or duration of proposed action:**

**It has been determined that the above action:**

☐ Does not involve any extraordinary circumstances as described in 14 CFR 1216 and qualifies for Categorical Exclusion # ___ as prescribed in 14 CFR 1216.304(d) which prescribes NASA's criteria for determining if an environmental assessment under NEPA is needed.

☐ Is adequately covered in an existing EA or EIS entitled:

_____ and dated _____.

☐ Will require an Environmental Assessment ☐ or Environmental Impact Statement ☐

**Other Environmental Considerations/Requirements** (*List permits, documentation, actions that must be taken prior to or during project implementation):*

*This does not release the Project Manager/Technical Point of Contact from following other environmental requirements that may apply as specified in the LaRC Environmental Construction Specifications and LPR 8500.1. If the location or scope of the project as provided above should change, please contact the EMO at 47762. This REC is valid for one year from final execution (may be extended if project remains unchanged and environmental requirements remain the same).*

_____ _____
[Name] Project Manager Date

_____ _____
[Name] LaRC NEPA Manager Date

# 5 WATER QUALITY

## 5.1 GENERAL

The purpose of this chapter is to provide information on applicable regulatory requirements and procedures related to water quality standards and permitted water discharges at LaRC.

## 5.2 REQUIREMENTS

5.2.1 LaRC must comply with the Clean Water Act, the Federal Water Pollution Control Act, state and local laws and regulations pertaining to water pollution and water quality management, as well as total maximum daily loads (TMDLs) and associated waste load allocations as set by LaRC's permits.

### 5.2.2 **Center Discharge Permits**

5.2.2.1 LaRC operates under three legally enforceable water discharge permits that limit the types and quantities of pollutants discharged and establish monitoring and recordkeeping requirements. Copies of LaRC's water discharge permits are available upon request.

5.2.2.2 Regulatory agencies conduct periodic inspections at the Center.

### 5.2.3 **Construction/Land Disturbing/Demolition Activities**

5.2.3.1 It is LaRC policy that all land-disturbing activities, as defined by the Code of Virginia, shall apply erosion and sediment control practices and stormwater best management practices, regardless of the size of disturbance.

5.2.3.2 The best management practices shall ensure that there is no discharge of sediment from a project and that a project does not adversely affect water quality.

5.2.3.3 Projects not in compliance with these requirements are subject to enforcement action.

5.2.3.4 LaRC has approval from the Virginia Department of Environmental Quality (DEQ) to administer its own stormwater program through the submission of Annual Stormwater Management and Erosion and Sediment Control Standards and Specifications. This document, "NASA Langley Research Center Annual Standards and Specifications: Erosion and Sediment Control (ESC) & Stormwater Management (SWM)" (hereafter referred to as the "LaRC SWM Annual Standards and Specs"), outlines the requirements for Stormwater Management and Erosion and Sediment Control for construction and demolition activities on Center and provides the authority for enforcement of requirements by the EMO.

5.2.3.5 The EMO evaluates projects under the LaRC SWM Annual Standards and Specs and determines if coverage under the General Virginia Pollutant Discharge

Elimination System Permit for Discharges of Stormwater From Construction Sites is required.

5.2.3.6 The EMO requires the completion of an LF 461 for all projects except for those activities listed on the “LF 461 Excluded Activities List”. See section 4.4.

5.2.3.7 Land-disturbing activities less than one acre are subject to the following:

a. Each land-disturbing activity of at least 10,000 square feet or when deemed necessary by the EMO (to a minimum of 2,500 square feet), shall prepare a site-specific ESC Plan that is compliant with the Virginia Erosion and Stormwater Management Regulations.

b. When deemed necessary by the EMO, a land-disturbing activity (to a minimum of 2,500 square feet) shall prepare a site-specific SWM Plan that is compliant with the Virginia Erosion and Stormwater Management Regulations.

c. Site-specific ESC and SWM Plans shall be approved by the EMO prior to any land disturbing work commencing.

5.2.3.8 Land-disturbing activities of at least one acre of land are subject to permitting and require the following:

a. Each land-disturbing activity of at least one acre of land requires coverage under Virginia DEQ General Permit No. VAR10, the General Virginia Pollutant Discharge Elimination System Permit for Discharges of Stormwater from Construction Activities.

    (1) It is the responsibility of the Contractor to apply for the Construction General Permit (CGP) coverage (if outlined in the contract specification/statement of work).
    (2) The Permit shall be issued in the contractor’s name as the construction site operator.
    (3) The contractor shall be responsible for all fees.

b. Each land-disturbing activity of at least one acre of land requires a site-specific ESC Plan and SWM Plan compliant with Virginia Erosion and Stormwater Management Regulations. The ESC Plan and SWM Plan shall be approved by the EMO prior to any land disturbing work commencing or application for CGP coverage.

c. Each land-disturbing activity of at least one acre of land requires a SWPPP as required by Virginia Erosion and Stormwater Management Regulations.

    (1) Operators of such activities shall submit a SWPPP to the EMO for review and approval prior to submitting a Registration Statement for permit coverage to DEQ and prior to the commencement of any land disturbance activities.

(2) The requirements for SWPPP contents are outlined in the LaRC SWM Annual Standards and Specs.
(3) The SWPPP is to be retained at the construction site, along with a copy of the permit and permit coverage letter.
(4) The operator has the lead in developing, implementing, and maintaining the SWPPP and committing the resources necessary to prevent pollution.
(5) Detailed information as well as the appropriate forms can be found at the following link: https://www.deq.virginia.gov/permits-regulations/permits/water/stormwater-construction.

### 5.2.4 **Management of Fats, Oils, and Grease**

5.2.4.1 No fats, oils, and grease (FOG) shall be poured down any drain since they cool and stick to the sides of drain pipes causing backups in the sewer system.

5.2.4.2 All food service establishments shall have a grease control device or devices which have been approved by the EMO and meet all applicable requirements of the Virginia Uniform Statewide Building Code.

5.2.4.3 Grease control devices shall be properly maintained at all times.

5.2.4.4 Maintenance of grease control devices shall include the complete removal of all contents, including floating material, wastewater, and settled solids.

5.2.4.5 Decanting or discharging of removed waste back into the grease interceptor or into the Hampton Roads Sanitation District (HRSD) wastewater collection system is prohibited.

5.2.4.6 Grease interceptors shall be pumped out completely when the total accumulation of surface FOG, including floating solids and settled solids, reaches twenty-five (25) percent of the overall liquid volume.

5.2.4.7 At no time shall a grease control device be cleaned less frequently than once every three (3) months unless allowed by the EMO, and frequency variance will not result in the introduction of any greater quantities of FOG into the sewer system than would otherwise be introduced.

5.2.4.8 The use of additives including, but not limited to, products containing solvents, emulsifiers, surfactants, caustics, acids, enzymes, or bacteria are prohibited for use as grease management control, unless authorized by the EMO.

5.2.4.9 Waste removed from a grease trap shall be disposed of in a closed container in the trash or by a grease hauler certified by the Hampton Roads Planning District Commission.

5.2.4.10 Waste removed from a grease interceptor shall be disposed of at a facility permitted to receive such wastes.

5.2.4.11 No materials removed from interceptors shall be returned to any grease interceptor, or into HRSD's wastewater collection system.

5.2.4.12 Food service establishments shall retain and make available for inspection records of all cleaning and maintenance for the previous three (3) years for all grease control devices.

5.2.4.13 Cleaning and maintenance records shall include, at a minimum, the date of cleaning/maintenance occurred, company name (or the person performing the work) and business address, and the volume of waste, including a breakdown percentage of grease and settled solids, removed in each cleaning.

## 5.3 RESPONSIBILITIES

### 5.3.1 Facility Environmental Coordinators shall:

a. Have knowledge of facility operations under their control that may result in potential release of water pollutants.

b. Be aware of applicable permit requirements and act to prevent unpermitted discharges.

c. Assist the EMO by providing information and data required to comply with water permit requirements and compliance inspections.

d. Contact the EMO to determine alternative disposal options in situations where surface water or sanitary discharge is not permissible.

e. If unsure of whether discharge is covered under LaRC water permit, contact the EMO for guidance.

f. In the event of a permit violation or spill, participate in the investigation to determine the cause of the discharge and recommend remedial action to prevent reoccurrence.

g. Proactively seek out illicit discharges to the sanitary and stormwater system and notify the EMO if any are found and/or eliminated.

h. Proactively seek out any pollutant discharges to the stormwater system, including nitrogen, phosphorous, sediment, and bacterial loadings. Notify the EMO if any are found and/or eliminated.

i. Participate with the EMO in conducting water quality and water quantity pollution prevention (P2) opportunity assessments.

j. Identify, develop and implement P2 projects.

k. Ensure maintenance is performed on grease control devices and maintenance records are readily available upon request.

### 5.3.2 The Environmental Management Office shall:

a. Monitor and report as required by the permits, maintain all related files, and prepare permit applications.

b. Serve as the point of contact for LaRC with regulatory agencies and stakeholders.

c. In the event of a permit violation, coordinate the investigation and submit findings to the permitting agency, as necessary.

d. Approve or disapprove discharges from operations not included on the Center's water discharge permits (i.e., decontamination shower water, closed-loop cooling systems, water tanks), to include on-site contractor operations.

e. Determine what analytical testing, if any, is required for the water discharge to ensure compliance with environmental regulations.

f. Perform outfall monitoring and MS4 illicit discharge inspections as outlined in the MS4 Program Plan.

g. Serve as the lead on developing programs and procedures necessary to address any TMDLs.

h. Monitor implementation of TMDL Action Plans for effectiveness in reducing WLA pollutants and assess and update plans annually.

i. Manage and update the Center's MS4 Program Plan to ensure General Permit requirements are met and to ensure BMP implementation on existing developed regulated lands to achieve pollutant reductions required by the Chesapeake Bay TMDL and the Back River TMDL.

j. Ensure compliance with LaRC SWM Annual Standards and Specs by reviewing ESC, SWM, and SWPPP submissions for all projects and overseeing and enforcing these standards and specifications through procedures as outlined in the document.

k. Oversee appropriate permitting of land-disturbing activities, including review of projects, permit determinations, permit submittals (SWPPPs, Plans), and inspections.

l. Ensure that stormwater best management practices are included in new construction designs and renovations, and that these designs follow the guidance of the Virginia

Erosion and Stormwater Management regulations and handbooks, and satisfy the requirements of EISA Section 438, if applicable.

m. Coordinate with Program Managers/Project Initiators to ensure any required long-term maintenance of required stormwater best management practices on projects meets Virginia Erosion and Stormwater Management Regulations and EISA requirements.

n. Ensure that sanitary sewer best management practices are included in new construction designs and renovations, including eliminating FOG discharges.

### 5.3.3 Program Managers/Project Initiators shall:

a. Ensure that LaRC Environmental and Energy Design Standards are incorporated in projects and contracts where applicable.

b. Submit an LF 461 for any project with land disturbance, or potential water impacts or discharges.

c. Obtain approval from the EMO prior to beginning any projects or operations that have water discharges not covered under the Center's water permits.

d. If unsure of whether a discharge is covered under a water permit, contact the EMO for guidance. The EMO will determine what analytical testing, if any, is required for the water discharge to ensure compliance with environmental regulations.

e. For projects involving land disturbance, follow requirements in sections 5.2.3.7 and 5.2.3.8 and work closely with the EMO if permitting is involved on a project to ensure permit compliance at all times.

f. Ensure clean condensate water does not discharge to the sanitary system (including through floor drains routed to sanitary) or to any stormwater management facility BMP. Clean condensate water may discharge to the ground or stormwater system.

### 5.3.4 Contracting Officer's Representatives shall:

Ensure that contractors:

a. Comply with Center's water discharge permit requirements.

b. Perform operations in a manner that prevents unpermitted water discharges.

c. Comply with applicable state and federal laws, regulations, permits, EMO policies, procedures, and inspection findings related to land-disturbing activities.

### 5.3.5 Center Personnel and On-site Contractors shall:

a. Perform operations in a manner that prevents unpermitted water discharges.

b. Prevent the discharge of any wastewater with FOG or other substances harmful or hazardous to the sanitary sewer system or the stormwater sewer system.

c. Prevent the discharge of clean condensate water to the sanitary sewer system or any stormwater management facility BMP.

d. Obtain approval from the EMO before the start of any operations that have discharges not covered under the Center's water permits.

e. If unsure whether a discharge is covered under a LaRC water permit, contact the EMO for guidance.

f. In the event of an illicit discharge, immediately contact the LaRC Emergency Dispatcher at 911 (from land line on Center) or at 864-5500 (business phone) or 864-2222 (from a cell phone). Provide as much information as possible to the dispatcher regarding the nature of the discharge.

### 5.3.6 Approved Vehicle Wash Operations shall:

a. Perform vehicle wash operations in accordance with LaRC's VPDES Industrial Permit, including using permitted wash products and permitted wash locations.

b. Obtain approval from the EMO prior to making any changes to wash products or wash locations.

c. Ensure there is no discharge of visible foam to the stormwater utility, including drains or ditches.

### 5.3.7 Food Service Establishments shall:

Comply with the requirements of section 5.2.4 of this Chapter.

# 6 AIR QUALITY

## 6.1 GENERAL

The purpose of this chapter is to provide information on applicable regulatory requirements and procedures related to air quality at LaRC.

## 6.2 REQUIREMENTS

6.2.1 LaRC must comply with the Clean Air Act (CAA), as well as state and local laws and regulations pertaining to air pollutant emissions and air quality.

6.2.2 The U.S. Environmental Protection Agency (EPA) has granted the Virginia DEQ authority for oversight and enforcement of CAA provisions.

### 6.2.3 **Center Air Operating Permit**

6.2.3.1 LaRC has a federally enforceable state operating permit issued by DEQ for its stationary sources of air pollution.

6.2.3.2 The permit limits emissions from specific sources of air pollution as well as from the entire research facility, and specifies operating, monitoring, and recordkeeping requirements.

6.2.3.3 To assess compliance with the permit conditions, DEQ conducts periodic air inspections at the Center.

6.2.3.4 A copy of the current LaRC air permit is posted on the LaRC Environmental and Energy Management Web site at https://emis.ndc.nasa.gov/air.cfm. Permitted air emissions sources (i.e., regulated equipment) are listed in the permit.

### 6.2.4 **Compliance Requirements of the Air Operating Permit**

Specific permit requirements vary according to the air pollution source but generally fall into one of four categories:

a. Physical:
   (1) Requirement for air pollution controls to limit emissions. Examples include low nitrogen oxide (NOx) burners on boilers and filters on paint booths.
   (2) Requirement for monitoring equipment to measure emissions or process rates.

b. Operational:
   (1) Limits on the amount of fuel burned or materials processed.
   (2) Limits on the frequency and duration of operations.
   (3) Limits on the types and amounts of product that can be used, such as paints and solvents.

c. Recordkeeping:
   (1) Documents that physical and operational requirements are met.
   (2) Documents the quantity of products, fuel, and materials used.
   (3) Documents the frequency and duration of operations.

d. Reporting and Inspections:
   (1) Requirement for periodic reports to regulatory agencies.
   (2) Requirement for Annual Inventory and Emissions Statement.
   (3) Allowance for periodic compliance inspections by DEQ.

## 6.3 RESPONSIBILITIES

### 6.3.1 Facility Environmental Coordinators shall:

a. Know the facilities and operations under their responsibility that are, or have the potential to be, sources of air pollution.

b. Be familiar with the permitted sources of air pollution and with the applicable permit requirements for those sources.

c. Notify the EMO prior to moving, changing, modifying, removing, or installing an air emission source.

d. Consult with the EMO to evaluate operations of concern and to ensure compliance with air pollution regulations and permit requirements.

e. Ensure air emissions sources are properly maintained.

f. Provide data, as required by the LaRC air permit, to the EMO in a timely manner for air emissions monitoring and inventory.

g. Participate with the EMO in conducting air quality P2 opportunity assessments.

h. Minimize or eliminate sources of air pollution through the use of feasible engineering and administrative controls.

i. Substitute non-polluting materials when practical to use them.

### 6.3.2 The Environmental Management Office shall:

a. Monitor and report air pollutant emissions and prepare air permit applications as required by regulatory agencies.

b. Serve as the point of contact at LaRC for communications with regulatory agencies regarding air emissions and permitting issues.

c. In the event of discovering a potential permit violation, contact the appropriate facility personnel and develop a solution/plan for correcting the problem. The solution/plan may include establishing a temporary fix and/or procuring the necessary funds to achieve full compliance.

d. Prepare and maintain emission inventories, summary reports, and a list of permitted air sources.

### 6.3.3 The Logistics Management Office shall:

a. Provide the EMO with monthly reports documenting the quantity of fuel issued from stock.

b. Provide the EMO with fuel certification per air permit condition 3.

c. Provide the EMO with monthly data on parts washer solvent throughput for the solvent parts washer in B1199 vehicle maintenance shop and solvent parts washers on all contracts administered by the LMO.

### 6.3.4 Program Managers/Project Initiators shall:

Use the LF 461 process to notify the EMO prior to moving, changing, modifying, removing, or installing an air emission source.

*Note: The LaRC air permit is required to be updated before beginning these activities. DEQ can take six months or longer to update the permit. Modifying a source includes changing the materials or chemicals used.*

### 6.3.5 Center Personnel and On-site Contractors shall:

a. Be aware of and comply with the LaRC air permit requirements.

b. As necessary, assist FECs with preparation of the required information necessary for permit compliance, monthly monitoring and recordkeeping, and annual updates.

### 6.3.6 The On-site Maintenance Contractor shall:

a. Comply with all applicable EPA refrigerant management regulations under 40 CFR 82 (Protection of Stratospheric Ozone).

b. Utilize the Refrigerant Compliance Manager database and software and maintain all records necessary for compliance with these regulations.

### 6.3.7 The Safety and Facility Assurance Branch shall:

Ensure that demolition and renovation activities at LaRC are performed in compliance with 40 CFR Part 61 Subpart M – National Emission Standard for Asbestos (also see Chapter 9).

# 7 WASTE MANAGEMENT & MINIMIZATION

## 7.1 GENERAL

The purpose of this chapter is to provide information on the regulatory requirements and procedures regarding proper management of various hazardous and nonhazardous wastes at LaRC. The procedures comply with regulations and policies established by the EPA, the Occupational Safety and Health Administration (OSHA), the Virginia DEQ, and the LaRC EMO.

## 7.2 REQUIREMENTS

7.2.1 LaRC must comply with the Resource Conservation and Recovery Act (RCRA) of 1976, the Hazardous and Solid Waste Amendments to RCRA, as well as other federal, state and local laws and regulations pertaining to the management of hazardous and nonhazardous wastes.

7.2.2 LaRC manages several categories of wastes prohibited from disposal in the municipal trash system, and each category is subject to specific requirements and management procedures. The types of prohibited wastes that LaRC manages are outlined below:

a. Hazardous Waste (HW) - HW is a waste with properties that make it dangerous or potentially harmful to human health or the environment. Although the criteria for identifying and classifying HW are complex, HW often exhibits at least one of four characteristics – ignitability, corrosivity, reactivity, or toxicity. Common LaRC wastes that may be classified as HW include, but are not limited to, acids/caustics, adhesives, compressed gas cylinders, fuels, paints, lead or silver solder, and solvents. At LaRC, HW is accumulated by generating facilities at Satellite Accumulation Areas (SAAs) and collected for disposal by the EMO. Management and disposal procedures are described in sections 7.2.4 through 7.2.8.

b. Universal Waste - Universal Waste is a subcategory of HW that is subject to less stringent management requirements than other HW. Universal Waste consists of certain batteries, pesticides, mercury-containing equipment, and lamps (e.g., fluorescent light bulbs). Section 7.2.10 describes Universal Waste management procedures.

c. Oils - Oil, lubricants, oily water, and oily debris are prohibited from trash disposal although they are categorized as “nonhazardous waste” under RCRA. Procedures for the management of oils are described in section 7.2.11.

d. Metals - Many metals naturally contain trace amounts of hazardous constituents that may leach into the environment if disposed in a landfill. Lead solder is considered a HW and shall be managed according to the requirements in sections 7.2.4 through 7.2.8. Other metals are recycled following procedures described in section 11.2.6.1.

e. Polychlorinated Biphenyls (PCBs) - Materials containing PCBs (for example, some fluorescent lamp ballasts, transformers, and capacitors) are prohibited from trash disposal. Management and disposal procedures are described in Chapter 8.

f. Asbestos - Asbestos-containing materials are prohibited from trash disposal. Management and disposal procedures are described in Chapter 9.

g. Regulated, Non-Hazardous Waste - A non-hazardous waste that does not fall into one of the above categories may be classified as a Regulated, Non-Hazardous Waste. This type of waste may have specific disposal restrictions or prohibitions that apply. If unsure about disposal requirements for a waste stream, contact the EMO for guidance.

### 7.2.3 **Solid Waste Management**

7.2.3.1 Solid waste refers to nonhazardous, non-liquid wastes that do not fall into any of the above categories. The Center manages solid waste through an integrated approach incorporating recycling, composting, energy recovery, and landfilling.

7.2.3.2 The preferred hierarchy of solid waste reduction and disposal at LaRC is source reduction, reuse, recycling, incineration, and finally landfilling.

### 7.2.4 **Hazardous Waste Management**

7.2.4.1 RCRA dictates specific HW management requirements based on the total amount of HW generated. LaRC is categorized as a Large Quantity Generator, which makes it subject to the following RCRA requirements:

a. LaRC shall store HW at its central HW Storage Area for no more than 90 days.

b. LaRC shall have a contingency plan for handling emergencies.

c. LaRC shall submit a biennial HW report.

d. LaRC shall have in place a waste minimization program to reduce the volume and toxicity of waste generated.

e. LaRC shall not transport HW offsite or dispose of HW on-site – these functions shall only be performed by permitted contractors.

7.2.4.2 The Department of Transportation (DOT) requires that shippers and carriers of certain highly hazardous items develop and implement security plans. In accordance with these requirements, LaRC has developed a Hazardous Material and Hazardous Waste (HM/HW) Security Plan that includes measures to verify background information for personnel with access to hazardous materials and wastes, measures to address

unauthorized access to hazardous substances, and measures to address the security risks of shipments while in transit. The plan is available by contacting the EMO.

7.2.4.3 LaRC's specific HW procedures, as dictated by RCRA, are described below in sections 7.2.5 through 7.2.8

### 7.2.5 **Waste Minimization**

7.2.5.1 Waste minimization is required by RCRA, and LaRC strives to minimize the volume and toxicity of wastes generated at the Center in accordance with the hierarchical strategy established by the Pollution Prevention Act of 1990.

7.2.5.2 Source reduction, reuse, and recycling shall be utilized to the maximum extent practicable.

7.2.5.3 One avoidable source of HW results from the poor management of hazardous materials. LaRC requires hazardous materials to be managed in accordance with federal, state and local regulations, LPR 1710.12, "Potentially Hazardous Materials – Hazard Communication Standard," LPR 1710.13, "Chemical Hygiene Plan," and Chapter 18 of this LPR.

7.2.5.4 Poorly managed hazardous materials may result in expired, spoiled, or contaminated materials that are unsuitable for their intended purpose. In these cases, the items would require disposal as HW, resulting in additional disposal costs.

7.2.5.5 If an organization fails to follow the above requirements, resulting in unnecessary HW disposal costs, the responsible organization may be charged for the disposal.

### 7.2.6 **Training**

7.2.6.1 All personnel who use, handle, or request disposal of hazardous materials, oil, or HW shall attend training on management procedures relevant to the tasks they are performing. The training also includes emergency response procedures and familiarization with equipment and systems where applicable.

7.2.6.2 Training is mandatory and shall be attended annually or whenever new or different hazards are introduced into the workplace. The Waste Management Training course is offered by the EMO.

### 7.2.7 **Facility Accumulation Procedures**

A Satellite Accumulation Area (SAA) is a specific location at a facility that is designated to accumulate HW. Below are specific requirements for managing SAAs in accordance with 40 CFR 262.15:

a. SAAs shall be located at or near the point of waste generation.

b. SAAs shall be under the control of the operator of the process generating the waste.

c. HW from one SAA shall not be moved to another SAA.

d. Pre-labeled drums/containers with unique identification numbers are issued by the EMO for accumulating waste and are available by calling 5-DRUM.

e. The use of product containers for accumulating waste is prohibited.

f. The containers issued shall stay at the receiving facility/location and contain only the waste for which they were issued.

g. Each HW container located at an SAA shall be marked with the words “Hazardous Waste” and include identification of the contents and hazard(s) of the waste contained therein.

h. Each container at an SAA shall be closed at all times (unless adding waste).

i. Each container at an SAA shall be maintained in good condition (non-leaking).

j. SAA inspections shall be performed weekly and documented. An example inspection sheet is available at: https://emis.ndc.nasa.gov/cmts/HazWaste/SAA_UWA-insp.pdf.

k. A one-page Spill Response Plan shall be posted at each SAA.

   (1) Where appropriate, there shall be adequate spill supplies to clean up small spills or contain large spills. (Facilities must purchase their own supplies.)
   (2) A facility-specific Spill Response Plan can be generated at https://emis.ndc.nasa.gov/cmts/hazwaste/spill/spill_response.htm.
   (3) Accumulation of solvent rags, aerosol cans, and solder debris are exempt from this requirement.

l. No more than 55 gallons TOTAL of HW or 1 quart of acute HW shall be accumulated at an SAA. Acute wastes are specifically listed by the EPA. A copy of the list is available by contacting the EMO. Users shall leave headroom (3 inches for a 55-gallon drum, 1 inch for a 5-gallon container) in containers to allow for expansion.

### 7.2.8 **Facility Disposal Procedures**

7.2.8.1 A HW container shall be removed from an SAA within 3 days of when the 55-gallon limit is reached.

7.2.8.2 The accumulation start date on the HW label shall be filled in only when the 55-gallon limit of HW is reached.

7.2.8.3 HW generators shall use the Waste Disposal Tracking System (WDTS) available at https://emis.ndc.nasa.gov/hazwaste_sys/hazwaste_welcome_scr.cfm to request the removal of HW by the EMO. The WDTS contains the electronic Waste Material Data Sheet (LF 163) which is filled out for each HW that requires pickup and disposal.

7.2.8.4 Pickup of aerosol cans may also be requested using the simplified electronic form at https://emis.ndc.nasa.gov/rapp/bflac.htm or by calling 5-DRUM.

7.2.9 **Disposal Cost Responsibilities**

7.2.9.1 The safe use and storage of hazardous materials are discussed in LPRs 1710.12 and 1710.13, hazardous material tracking requirements are discussed in Chapter 18 of this LPR, and proper procedures for managing a hazardous material that becomes a hazardous waste are provided in Chapter 7 of this LPR.

7.2.9.2 The EMO is responsible for the disposal of non-hazardous/hazardous waste generated by LaRC personnel and on-site contractors that has been managed properly in accordance with this LPR.

7.2.9.3 if the EMO determines that hazardous material has been improperly managed or requires special handling outside normal disposal operations, the responsible organization may be charged for all disposal-related costs.

7.2.10 **Universal Waste Management**

7.2.10.1 Universal Waste is a subset of HW, so the accumulation and disposal procedures are similar. The requirements for Universal Waste management differ from requirements for other HW in the following respects:

a. Containers are labeled with a “Universal Waste” label and identifies the contents. For example, Universal Waste – Used Batteries.

b. The start date is filled in when the waste accumulation begins (as opposed to the HW requirement of when the container is full).

c. Universal Waste can be accumulated at LaRC for up to 1 year, at which point it must be shipped off-Center for disposal. For LaRC to meet this requirement, generators shall have their Universal Waste picked up by the EMO within 270 days (9 months) of the start date to allow staff sufficient time to ship it off-site for disposal.

d. Universal waste containers shall be inspected weekly.

e. Inspections shall be documented on the SAA inspection sheet. An example SAA inspection sheet is available at https://emis.ndc.nasa.gov/cmts/HazWaste/SAA_UWA-insp.pdf

f. Battery terminals shall be taped to prevent fire/sparks and accumulated in non-metallic containers. Generators may request pickup electronically at https://emis.ndc.nasa.gov/rapp/bflac.htm or by calling 5-DRUM.

g. Facilities' fluorescent light bulb accumulation areas are exempt from SAA requirements to maintain spill plans and spill materials. In most cases, the LaRC lighting contractor replaces bulbs at Center facilities.

h. Facilities that change their own bulbs shall accumulate them in the original box (to prevent breakage) and label it as "Universal Waste – Used Lamps." Generators may request pickup electronically at https://emis.ndc.nasa.gov/rapp/bflac.htm.

7.2.10.2 Aside from these differences, all other HW management requirements apply to Universal Wastes (e.g., annual training, labeling, maintaining closed containers).

7.2.11 **Used Oil Management**

7.2.11.1 Used oils, used lubricants, oily debris, and oily water are accumulated at locations convenient to the generating facility and shall be stored in containers labeled with "Nonhazardous Waste" and the identity of the substance.

7.2.11.2 Accumulation containers can be requested from the EMO by calling 5-DRUM. Used oils are not subject to the SAA requirements in section 7.2.7, but the following requirements apply:

a. Containers shall be kept closed and in good condition.

b. Oil stored outdoors or near floor drains/trenches, or hazardous material storage areas shall include adequate spill containment (e.g., spill containment pallets) and be in compliance with EPA Spill Prevention, Control, and Countermeasure Plan (SPCC) regulatory requirements. See Chapter 14 for more information.

c. Generators and handlers of used oils are required to attend Waste Management Training as described in section 7.2.6.

d. To dispose of used oils, generators shall request pickup electronically through the WDTS at https://emis.ndc.nasa.gov/hazwaste_sys/hazwaste_welcome_scr.cfm.

7.2.11.3 Drip pans and buckets used for equipment oil (motor oil, hydraulic fluid, transmission fluid, etc.) drips/leaks shall be labeled "used oil." The closed container rule does not apply to drip pans/buckets in active use.

7.2.11.4 Drip pans/buckets shall be monitored for overflow and emptied as necessary into the appropriate used oil accumulation container.

7.2.12 **Soil Excavation**

7.2.12.1 If a proposed LaRC project will involve the excavation or removal of soil, the project initiator shall coordinate with the EMO to ensure that appropriate sampling is performed in accordance with the LaRC Environmental Construction Specifications prior to project startup.

7.2.12.2 The number of samples and the sample parameters shall be determined according to the volume of soil excavated and the requirements of the facility to be used for disposal (e.g., local landfill).

7.2.12.3 Soil that has not been sampled shall not be removed from LaRC without written approval from the EMO.

7.2.12.4 Soil piles shall be coordinated with the EMO. Depending on the size of the pile and length of time it is needed, permitting and compliance requirements may be triggered.

7.2.12.5 Soil piles shall adhere to requirements in section 5.2.3.

## 7.3 RESPONSIBILITIES

### 7.3.1 Facility Environmental Coordinators shall:

a. Ensure that facility personnel follow the waste management and disposal procedures outlined in this chapter.

b. Notify the EMO prior to establishing or modifying an SAA.

c. Review and approve completed Waste Material Data Sheets (LF 163s) in the WDTS.

d. Assist supervisors in ensuring that all personnel who use, handle, or request disposal of HW, oil, or hazardous materials attend the mandatory annual training.

e. Assist facility personnel in minimizing HW and review operations to ensure that they are conducted efficiently and reduce hazardous material use.

f. Participate with the EMO in conducting waste minimization P2 opportunity assessments.

g. Identify, develop, and implement P2 opportunities to minimize or eliminate the generation of wastes.

h. Contact the EMO as early as possible, but at least 2 weeks prior to starting work on large waste-generating projects (e.g., lead paint removal, wash-down of tunnel walls, maintenance activity that will generate oil discharges). Failure to do so could result in work stoppage or additional costs.

### 7.3.2 The Environmental Management Office shall:

a. Oversee the Center's HW management operations, including issuing labeled waste accumulation containers and removing full HW containers within the 72-hour notification time limit.

b. Prepare the HW Generators Biennial Report.

c. Dispose of waste through a qualified off-site contractor in accordance with all federal, state, and local requirements. Review audit information for Transfer, Storage, and Disposal Facilities used for HW disposal.

d. Provide periodic HW Management training to FECs and facility personnel.

e. Coordinate with Program Manager/Initiator or COTR to determine if environmental sampling will be required for any proposed projects.

f. Proactively seek out and implement opportunities to reduce or eliminate waste generation through P2 methodologies and the EMS.

### 7.3.3 Directors and Supervisors shall:

a. Ensure that facility personnel follow the waste management and disposal procedures outlined in this chapter. If mismanaged hazardous materials result in additional HW disposal costs, the responsible organization may be charged for the disposal.

b. Ensure that all personnel that use, handle, or request disposal of HW, oil, or hazardous materials attend the mandatory annual training.

### 7.3.4 Program Managers/Project Initiators shall:

a. Contact the EMO as early as possible prior to starting work on in-house, large waste-generating projects (e.g., lead paint removal, wash-down of tunnel walls, etc.). Failure to do so could result in work stoppage or additional costs.

b. Contact the EMO as early as possible prior to starting land-disturbing work that may generate excess soil to determine relocation or disposal requirements.

c. Ensure that all projects include provisions for compliance with the waste management requirements described in this chapter.

d. Ensure compliance with the requirements outlined in section 4.4.4 of this document.

### 7.3.5 Center Personnel and On-Site Contractors shall:

a. Minimize the volume and toxicity of generated waste to the maximum extent technically possible and economically feasible.

b. Attend mandatory Waste Management Training at least annually if job requires use or handling of HW, oil, or hazardous materials.

c. Call the LaRC Emergency Dispatcher at 911 (from land line on Center) or at 757-864-2222 (from a cell phone) in the event of a spill or leak of HW or oil.

d. Comply with all applicable waste management requirements and procedures as outlined in this chapter. As a reminder, the following list contains some common examples (not all-inclusive) of LaRC wastes that require special consideration and/or management procedures for disposal, as described in this chapter.

e. If unsure of proper disposal procedures, contact the EMO.

Acids/caustics
Adhesives
Aerosol cans
Asbestos-containing materials
Automotive fluids
Batteries
Capacitors
Chemicals
Cleaners
Cylinders
Fluorescent light bulbs
Fuels
Light ballasts
Mercury-containing equipment
Metals
Oils/lubricants
Oily debris
Oily water
Paints
Paint cans
PCBs
Pesticides
Photographic fluids
Recyclable items
Spill debris
Solder
Solvents
Solvent wipes/swabs

# 8 POLYCHLORINATED BIPHENYL (PCB) MANAGEMENT

## 8.1 GENERAL

The purpose of this chapter is to provide information on applicable regulatory requirements and procedures regarding PCBs and PCB-containing equipment. It also outlines LaRC procedures for proper identification, management, and disposal of PCB and PCB-containing items.

## 8.2 REQUIREMENTS

8.2.1 LaRC shall comply with the Toxic Substances Control Act (TSCA), which regulates the proper labeling, storage, use, servicing, decontamination, and disposal of all fluids containing greater than 50 parts per million (ppm) PCBs; electrical equipment containing such fluids; and cleanup debris from spillage or leakage of such fluids.

8.2.2 Items containing fluids that have a PCB concentration between 2 ppm and 50 ppm are considered “non-PCB” and are excluded from certain federal regulations with the exception of disposal practices.

8.2.3 Some facilities at the Center may still have PCB light ballasts or capacitors that have high levels of PCBs, or older electrical equipment that has very low levels of PCBs. Limited-access areas containing large high-voltage PCB capacitors (2,000 volts or greater) and individual PCB items shall be posted with a large PCB sign.

8.2.4 All PCB storage areas shall also be posted.

8.2.5 Items that have been retrofilled (fluids containing PCBs are removed and replaced with non-PCB fluid) shall be labeled with a non-PCB label. PCB signs and labels can be obtained by contacting the EMO.

## 8.3 RESPONSIBILITIES

### 8.3.1 Facility Environmental Coordinators shall:

a. Label and post signs on each PCB item and area in the facility. A list of items that require labeling can be obtained by contacting the EMO.

b. Contact the EMO for sampling of possible PCB items or for removing PCB items for disposal.

c. In the event of a PCB spill, immediately call the LaRC Emergency Dispatcher at 911 (from land line on Center) or at 757-864-2222 (from a cell phone). Also, notify the EMO.

### 8.3.2 The Environmental Management Office shall:

a. Provide PCB labels and signs to LaRC operators and custodians.

b. In the event of a spill, serve as the PCB Spill Coordinator and follow the procedures outlined in LPR 8715.12, “LaRC Integrated Spill Contingency Plan.”

c. Review/approve disposal requests and sign PCB shipping documents.

d. Approve or reject the use of PCB disposal facilities.

e. Manage the Center’s PCB Storage Facility, Building 1167, in accordance with LaRC waste management and TSCA requirements.

f. Inspect all PCB items to ensure proper labeling and packaging prior to being placed in storage at Building 1167.

### 8.3.3 Program Managers/Project Initiators shall:

a. Notify the EMO prior to work that will involve the removal of equipment and/or items containing fluids with any concentration of PCBs.

b. Ensure that contracts for the removal of PCBs include requirements for complying with all PCB removal procedures outlined in 8.3.4.

### 8.3.4 Contracting Officer’s Representatives shall:

a. Ensure that contractors/subcontractors performing PCB removal operations comply with the following requirements:

   (1) Conduct all PCB operations, including storage, disposal, and record-keeping, in accordance with applicable provisions of 40 CFR 761.
   (2) Temporarily store PCB items (e.g., transformers, capacitors), for a period not to exceed 30 days from the date of removal from service.

      (a) Storage shall be coordinated with the EMO to ensure proper storage practices.
      (b) A notation shall be attached to the PCB item or PCB container housing that indicates the date of removal from service, its weight, and PCB content.

   (3) Package all PCB items for transportation according to applicable DOT regulations.
   (4) Perform sampling and analyses of PCB items as needed.
   (5) Include an Emergency Spill Plan in any operational procedures that include the handling of PCBs.

   *Note: All transformers and electrical equipment that have fluids containing any concentration of PCBs shall be drained before being transported off the Center for disposal. The only exceptions to this are transformers or capacitors that can be contained without modification in a drum or other leak-proof container. The EMO shall be notified prior to draining any equipment to ensure that proper accumulation containers are used.*

(6) At least 5 working days prior to transporting any PCB items or transformer oil off LaRC property, the following information shall be submitted to the EMO:

(a) Name and location of the ultimate disposal facility. Only LaRC-approved facilities may be used for the disposal of PCB items.
(b) A completed manifest that fulfills all statutory and regulatory requirements. The EMO will review the manifest prior to approval and signature.

*Note: Oil containing between 2-50 ppm PCBs shall be marketed to incinerators or burners defined in 40 CFR 761 or an EPA-approved chemical treatment facility.*

(7) In the event of a spill:

(a) Immediately call the LaRC Emergency Dispatcher at 911 (from land line on Center) or at 757-864-2222 (from a cell phone). Also, notify the EMO.
(b) Perform cleanup as required under 40 CFR 761.

(8) All personnel, including supervisors, involved with PCB spill prevention and cleanup shall be trained in accordance with federal/state regulations.

(9) No PCB site operations shall be performed if spill materials and qualified personnel defined under the Emergency Spill Plan are not at the site prior to starting any PCB operations.

### 8.3.5 Center Personnel and On-site Contractors shall:

If a spill or leak of PCBs is detected, immediately call the LaRC Emergency Dispatcher at 911 (from land line on Center) or at 757-864-2222 (from a cell phone). Also, notify the EMO.

# 9 ASBESTOS

## 9.1 GENERAL

9.1.1 This chapter provides information and establishes procedures at LaRC for proper identification, management, and disposal of asbestos.

9.1.2 The information is to be used in conjunction with the procedures contained in LPR 1800.1, “LaRC Occupational Health Program” (Chapter 8, “Asbestos Management Program”), applicable Unified Facilities Guidance Specifications (UFGS); and the LaRC Environmental Construction Specifications.

## 9.2 REQUIREMENTS

### 9.2.1 Regulations

9.2.1.1 When managing the emission of asbestos to the environment and exposure of personnel to asbestos, LaRC must comply with the regulatory programs under the Clean Air Act, TSCA, and OSHA.

9.2.1.2 Virginia regulations parallel federal regulations but are more restrictive with regards to renovation notification requirements.

9.2.1.3 State licensing of personnel involved with asbestos work (e.g., inspectors, abatement workers) is required for LaRC asbestos operations.

9.2.1.4 Landfills that accept asbestos-containing material must be licensed by the state.

### 9.2.2 Asbestos Disposal

9.2.2.1 Disposal of friable asbestos waste is regulated under 40 CFR Part 61 and shall be managed in accordance with LaRC Environmental Construction Specifications.

9.2.2.2 Disposal is permissible only in state-licensed landfills.

9.2.2.3 Transportation of open containers of asbestos waste is prohibited under DOT regulations (49 CFR 173).

9.2.2.4 Disposal of asbestos waste is the responsibility of the contractor performing the removal/abatement activity.

### 9.2.3 Posting and Labeling

9.2.3.1 Warning signs and labels are required to inform facility occupants of the presence of ACBM.

9.2.3.2 Labeling and posting procedures can be found in OSHA's regulation 29 CFR 1910.1001. Signs and labels are available from the LaRC Safety and Facility Assurance Branch (SFAB) at extension 4SAFE (47233).

## 9.3 RESPONSIBILITIES

### 9.3.1 The Environmental Management Office shall:

a. Review work requests involving asbestos removal and remediation.

b. Arrange for asbestos disposal when appropriate.

c. Review and sign asbestos manifests for both contractor and LaRC disposal.

d. Track manifests and submit exception reports, if necessary, to ensure compliance with regulatory requirements.

e. Review the LF 27, "NASA LaRC Asbestos Safety Permit," to ensure projects generating asbestos quantities requiring regulatory notification per 40 CFR 61.145(b) and have completed the notification to the appropriate agency at least 10 working days prior to start of removal work.

f. Ensure copies of notifications required per 40 CFR 61.145(b) are attached to the LF 27.

g. Prepare annual predictions of planned renovation operations according to 40 CFR 61.145 and submit predictive notifications to EPA.

h. Retain copies of regulatory notifications and return receipts.

### 9.3.2 Facility Safety Heads shall:

a. Ensure asbestos materials/areas are properly labeled.

b. Notify the LaRC SFAB of changes to the facility's ACBM inventory or condition.

### 9.3.3 The Safety and Facility Assurance Branch shall:

a. Ensure that demolition and renovation activities at LaRC are performed in compliance with 40 CFR Part 61 Subpart M - National Emission Standard for Asbestos.

b. Review work requests, facility renovation/demolition plans, and other projects for asbestos involvement.

c. Conduct inspections to identify ACBM and assess condition.

d. Recommend remedial action as necessary; periodically re-inspect and reassess. Notify FSHs of changes of ACBM inventory and condition.

e. Provide signs and labels to facility personnel.

f. Approve Asbestos Safety Permits and contractor removal procedures.

g. Monitor and inspect abatement operations.

### 9.3.4 Contractors and Subcontractors Involved in Generating Asbestos Waste shall:

a. Handle and package all asbestos generated waste in the performance of work under the contract.

b. Comply with procedures outlined in section 9.3.6 below as stated in the contract.

### 9.3.5 Program Managers/Project Initiators shall:

Ensure that contracts involving asbestos removal/abatement include requirements for the contractors to comply with the procedures outlined in section 9.3.6 below.

### 9.3.6 Contracting Officer's Representatives shall:

Ensure that contractors/subcontractors performing work involving asbestos follow the requirements listed below:

a. Perform work in accordance with LPR 1800.1 and with LaRC Environmental Construction Specifications.

b. Submit job-specific procedures to the EMO before starting work. No work shall begin without prior approval from the EMO.

c. If applicable per 40 CFR 61.145(b), complete regulatory notifications to the appropriate agency at least 10 working days prior to start of removal work.

d. Provide to the EMO the name and physical location of the disposal site. Only facilities approved by the Commonwealth of Virginia may be used for asbestos disposal.

e. At least 2 days prior to shipment of asbestos off LaRC property, submit a completed asbestos waste manifest to the EMO at Mail Stop 133, Building 1195. EMO staff sign only complete manifests.

   *Note: Asbestos removed from LaRC removal/abatement sites remains Government property throughout the removal activity and shall be processed as such on the Waste Shipment Manifest.*

f. Transport the asbestos material off site in accordance with 49 CFR 173.216.

g. Dispose of the asbestos in accordance with 40 CFR 61 and state regulations.

h. Provide the EMO with the waste shipment record signed by the owner of the disposal facility indicating receipt of the asbestos waste from the transporter. This record shall be received by the EMO within 35 days from the date the transporter accepted the asbestos waste.

# 10 ENVIRONMENTAL NOISE

## 10.1 GENERAL

10.1.1 The purpose of this chapter is to provide information on applicable regulatory requirements and procedures related to environmental noise abatement at LaRC.

10.1.2 The aircraft operating from Langley Air Force Base (LAFB) are the dominant and most widespread noise source at the Center. Noise levels at LaRC resulting from the LAFB flyovers typically range from 65 to 85 dBA.

10.1.3 Primary environmental noise sources located at LaRC include wind tunnels, compressor stations, and substations. Most of the wind tunnels are closed-loop, meaning the noise generated is contained largely within the facilities, and many operate intermittently for short periods of time.

10.1.4 Noise level surveys conducted on the various wind tunnels at LaRC during peak operating mode have identified noise levels ranging from 45 to 80 dBA.

## 10.2 REQUIREMENTS

10.2.1 LaRC must comply with the Noise Control Act of 1972, the Quiet Communities Act of 1978, local noise ordinances, and NASA's established noise standards.

10.2.2 NASA's Noise Standards establish the following workplace noise exposure limits: 85 dB measured for a duration of 8 hours, 88 dB for 4 hours, 91 dB for 2 hours, and 140 dB maximum for impulse noises.

10.2.3 The procurement of noise generating equipment must comply with NASA’s Buy Quiet and Quiet by Design requirements per NPR 1800.1, “NASA Occupational Health Program Procedures” and LPR 1800.1.

## 10.3 RESPONSIBILITIES

### 10.3.1 Facility Environmental Coordinators shall:

a. Know the facilities and operations in their areas of responsibility that are, or have the potential to be, sources of high noise levels.

b. Notify the EMO of new or changes to existing operations that generate, or have the potential to generate, high noise levels.

### 10.3.2 The Environmental Management Office shall:

a. Provide guidance and feedback to Center personnel as needed regarding the control and abatement of environmental noise at LaRC.

b. Serve as a point of contact for regulatory agencies for projects or issues related to environmental noise control and abatement.

### 10.3.3 The Safety and Facility Assurance Branch shall:

Provide assistance to the EMO regarding environmental noise issues at the Center.

### 10.3.4 Center Personnel and On-site Contractors shall:

a. Submit an LF 461 to the EMO for any new project or activity that may generate noise levels over 70 decibels.

b. Maintain noise levels at an acceptable level.

c. Address concerns about environmental noise levels to the EMO.

# 11 RECYCLING

## 11.1 GENERAL

11.1.1 This chapter provides information, procedures, and responsibilities regarding the recycling program at LaRC.

11.1.2 LaRC recycles white and mixed paper, cardboard, toner cartridges, aluminum cans, plastic bottles, scrap metal, used oil, batteries, fluorescent light bulbs, and used tires.

11.1.3 Section 7.2.10 of this LPR describes the procedures for handling batteries and fluorescent light bulbs, and section 7.2.11 describes the management procedures for used oil.

11.1.4 All recyclable materials except for used oil, batteries, and fluorescent light bulbs are collected by the Logistics Management Office (LMO).

11.1.5 The LMO keeps metrics on the quantity of materials collected, funds recovered, or disposal costs associated with recycling. Funds collected from the sale of recycled goods are reinvested in the recycling program or used to support Center sustainability initiatives. The LaRC recycling information Web site is located at https://fmsswebx.ndc.nasa.gov/cod/recycling-2/.

## 11.2 REQUIREMENTS

11.2.1 LaRC must comply with federal guidelines, EOs, and NASA policies that promote or require implementation of waste prevention and recycling measures.

11.2.2 LaRC must also comply with all federal requirements with regards to solid, hazardous, and toxic waste management and disposal.

11.2.3 **Management of Recyclable Items: White Paper**

11.2.3.1 White paper is collected in facilities in small blue containers provided by the LMO contract support staff. When an individual container is full, it is emptied into a large blue recycling container located at the facility's central collection area. Central collection containers are emptied by the LMO contract support staff on a regular schedule or on a call-in basis. Personnel may call the LMO to schedule a pickup.

11.2.3.2 The following characterizes which paper items can be recycled as white paper:

| Recyclable White Paper Items: | Items Not Recyclable as White Paper: |
|---|---|
| Computer Paper | Food Wrappers or Cups |
| White Letterhead | Laser Print Labels |
| White Typing Paper | Overheads |
| White Photocopy Paper | Paper of any color other than white |
| Fax Paper | Books and binders |

White Memos
White Paper with colored ink

11.2.4 **Management of Recyclable Items: Mixed Paper**

11.2.4.1 The LMO contract support staff collects and recycles “mixed paper” (i.e., paper of mixed colors other than white). Center personnel designate individual containers in their facilities for the collection of mixed paper. When the container is full, it is emptied into a large green container located at the facility’s central collection area. These containers are provided by the LMO contract support staff and are emptied on a regular schedule or on a call-in basis, based on the facility’s generation rate. Personnel may call the LMO to schedule a pickup.

11.2.4.2 The following characterizes which paper items can be recycled as mixed paper:

| Recyclable Mixed Paper Items: | Items Not Recyclable as Mixed Paper: |
|---|---|
| Colored Paper | Food Wrappers or Cups |
| Glossy Paper | Laser Print Labels |
| Post-it Notes | Carbon Paper |
| Manila Folders | Overheads |
| Catalogs/ Magazines (Glue and Staple-bound) | Newspaper |

11.2.5 **Management of Recyclable Items: Cardboard**

11.2.5.1 Large generators of cardboard have special collection bins to accommodate their volume of cardboard. Personnel are required to break down cardboard (flatten boxes) and place it in the large collection bins for pickup by the LMO contract support staff. FECs can make arrangements for a facility to receive a large generator collection bin or establish regular pickups by calling the LMO.

11.2.5.2 Small or infrequent generators of cardboard are required to break down the cardboard and place it next to the recyclable paper collection bins. It is picked up when the LMO contract support staff collects paper for recycling. Personnel may also call the LMO to schedule a special cardboard pickup.

11.2.5.3 The following characterizes which items can be recycled as cardboard:

| Recyclable Cardboard Items: | Items Not Recyclable as Cardboard: |
|---|---|
| Corrugated Cardboard (any color or thickness) | Paperboard (e.g., cereal boxes)<br>Cardboard with food contamination (e.g., pizza boxes)<br>Pressboard cores from plotter paper rolls |

Polystyrene, packing foam or packing peanuts

11.2.5.4 Packing peanuts can be recycled through the LMO. Contact LMO for pickup information.

11.2.6 **Management of Recyclable Items: Toner Cartridges**

11.2.6.1 Cartridges from Multi-Functional Device printers/copiers provided by LaRC's IT infrastructure services contract are recycled by that contractor; place the cartridges near the printers and contact the Agency Enterprise Service Desk for service.

11.2.6.2 The LMO contract support staff collects and recycles toner cartridges used in non-MFD printers. Used toner cartridges are placed inside the bag and the box that the new replacement cartridge came in. The box is taped closed and placed next to the paper bins at the facility's central collection area. Small laser jet ink cartridges are also recycled. They shall be placed in a plastic bag/container and placed at the same site as the toner cartridges.

11.2.6.3 For facilities with weekly paper pickup, cartridges are picked up when the paper is collected. For facilities that are on an on-call basis for paper pickup, personnel may call the LMO to schedule a toner cartridge pickup.

11.2.7 **Management of Recyclable Items: Scrap Metal**

11.2.7.1 Scrap metal includes all metal bars, frames, mounting brackets, models, metal chips, shavings, and grindings generated from any metal-cutting operations. Scrap metal is collected in separate containers (where practicable) designated as aluminum, copper and copper wire, and mixed metals (including steel).

11.2.7.2 Personnel shall call the Property Disposal Warehouse at extension 46339 to request pickups or a scrap metal recycling container. Facilities that generate small amounts of scrap metal may use any type of collection container labeled as "Scrap Metal for Recycling."

11.2.7.3 Disposal of scrap metal in the trash is strictly prohibited.

11.2.8 **Management of Recyclable Items: Aluminum Cans**

11.2.8.1 Aluminum cans are collected in facilities throughout the Center in designated bins. These designated bins for aluminum cans are identified with the words "Aluminum Cans Only" on the top of the container. Make sure the cans are empty of excess liquid. The empty aluminum cans do not need to be crushed before being placed in the bins.

11.2.8.2 The collection containers are emptied by the LMO contract support staff on a regular schedule. Personnel may call the LMO to schedule a pickup.

11.2.9 **Management of Recyclable Items: Plastic Bottles**

11.2.9.1 Plastic Bottles are collected in facilities throughout the Center in designated bins. These designated bins for plastic bottles are identified with the words “Plastic Bottles Only” on the top of the container. Make sure the plastic bottles are empty of excess liquids. The caps on the plastic bottles do not need to be removed.

11.2.9.2 The collection containers are emptied by the LMO contract support staff on a regular schedule. Personnel may call the LMO to schedule a pickup.

## 11.3 RESPONSIBILITIES

### 11.3.1 Facility Environmental Coordinators shall:

a. Ensure facility personnel follow established recycling procedures.

b. Post copies of the relevant recycling procedures and updates in a prominent location and/or near recyclable material collection areas.

c. Monitor recycling collection areas and arrange for pickup, if necessary.

d. Ensure collection containers are not contaminated with non-recyclable materials.

e. Educate facility employees about the recycling program

f. Inform the LMO staff of additional items that could be recycled or suggest improvements for the Center’s recycling program.

### 11.3.2 The Environmental Management Office shall:

a. Act as the Center’s official representative with government and private parties on recycling related matters.

b. Work with the LMO to prepare and mail billing invoices to recycling contractors as needed.

c. Work with the LMO to track the Center’s progress in meeting established goals.

d. Provide support, guidance, training, and assistance to organizations in implementing the recycling program to meet or exceed established goals.

e. Coordinate with the LMO in seeking out new items to recycle and new commodity markets to maximize proceeds to LaRC from the sale of LaRC recyclable materials.

### 11.3.3 The Logistics Management Office shall:

a. Manage and oversee the Center’s daily operations of collecting recyclables.

b. Work with the EMO to prepare and mail billing invoices to recycling contractors as needed.

c. Collect monthly metrics on the recycling program.

d. Collect recyclable items throughout the Center in a timely manner.

e. Provide day-to-day management of the collection of scrap metal and tires.

f. Provide the EMO with quarterly metrics of the quantities of each recycling stream collected.

g. Monitor recycling activities to ensure compliance with established recycling procedures.

h. Maximize the collection of these recyclable materials and maximize the proceeds to LaRC from the sale of the recyclable materials.

### 11.3.4 Program Managers/Project Initiators shall:

Ensure that contracts for construction, renovation, demolition, or deconstruction projects include:

a. Requirements for the reuse, recycling, or composting of construction and demolition (C&D) debris, and

b. Requirements for contractors to provide the EMO with a monthly report of the type and quantity of C&D debris that is reused, recycled, or composted.

### 11.3.5 Contracting Officer's Representatives shall:

Ensure that contractors performing construction, renovation, demolition, or deconstruction projects:

a. Maximize the reuse, recycling, or composting of C&D debris, and

b. Provide the EMO with a monthly report of the type and quantity of C&D debris that is reused, recycled, or composted.

### 11.3.6 Center Personnel and On-site Contractors shall:

a. Participate in the LaRC recycling program to the maximum extent practicable.

b. Keep abreast of the Center's recycling program information distributed by the FEC or available on the LaRC recycling information Web site located at https://fmsswebx.ndc.nasa.gov/cod/recycling-2/.

c. Ensure collection containers are not contaminated with non-recyclable materials.

d. Inform the FEC or LMO staff of additional items that could be recycled or suggest improvements to the Center's recycling program.

# 12 GREEN PURCHASING

## 12.1 GENERAL

12.1.1 This chapter provides information, procedures, and responsibilities regarding green purchasing, also known as sustainable acquisition or affirmative procurement.

12.1.2 Green purchasing procedural requirements emphasize that the government and its contractors shall give preference in their procurement and acquisition programs to the purchase of:

a. Recycled content products designated in EPA's Comprehensive Procurement Guidelines.
b. Biobased products designated by the U.S. Department of Agriculture (USDA) in the BioPreferred program.
c. Energy Star products identified by DOE and EPA, as well as FEMP-designated, energy-efficient products.
d. Water-efficient products, including those meeting EPA's WaterSense standards.
e. Environmentally preferable products and services, including Electronic Product Environmental Assessment Tool (EPEAT)-registered electronic products.
f. Non-ozone depleting substances, as identified in EPA's Significant New Alternatives Policy (SNAP) Program.
g. Alternative fuel vehicles and alternative fuels, including SmartWay Transport partners and SmartWay products.
h. Safer Choice labeled products with low or no toxic or hazardous constituents.

12.1.3 The Green Procurement Compilation (https://sftool.gov/greenprocurement) is the federal government's comprehensive green purchasing resource designed to assist contracting personnel and program managers identify applicable green purchasing requirements.

## 12.2 REQUIREMENTS

12.2.1 LaRC must comply with RCRA Section 6002, the Farm Security and Rural Investment Act of 2002, EPACT 2005, EISA 2007, the FAR, the NASA FAR Supplement, as well as other federal guidelines, EOs, and NASA procedural requirements pertaining to green purchasing.

12.2.2 Procurement initiators shall obtain and document request coordinations before a requisition can be acted upon via submittal of a NF 1707. Green purchasing requirements are covered in the "Environmental" section of the form.

12.2.3 A NF 1707 shall be completed for all new requirements for supplies and services and it will not be accepted until all required coordinations and approvals have been documented.

## 12.3 EXEMPTION REQUESTS AND JUSTIFICATION DOCUMENTATION

12.3.1 Products meeting sustainable acquisition requirements as listed in one of the federal environmental programs and meeting NASA's preference standards shall be purchased unless the following exceptions apply and are documented with appropriate justification documentation:

a. Products meeting environmental guidelines are available only at an unreasonable price, based on life cycle cost analysis.
b. Products meeting environmental guidelines do not meet quality/performance specifications or standards.
c. Products meeting environmental guidelines are not available within a reasonable timeframe.

12.3.2 Purchases of products or services listed in the federal sustainable acquisition programs that will not meet the programs' environmental requirements shall require justification that clearly identifies and documents the factors supporting the requested exemption.

12.3.2.1 This justification documentation shall be submitted with the applicable NF 1707 (with respect to "Section 3 – Environmental/Sustainable Acquisition") before the NF 1707 can be completed and approved.

12.3.3 Procurement of products or services designated under Energy Star, FEMP, or WaterSense that will not meet the necessary energy-efficiency or water-efficiency requirements shall require written approval by LaRC's Energy Manager.

12.3.3.1 This approval shall be submitted with the applicable NF 1707 (with respect to "Section 3 – Environmental/Sustainable Acquisition") before the NF 1707 can be completed and approved.

12.3.4 Purchases at or under the micro-purchase threshold are not subject to exemption documentation requirements, but the purchases shall either meet the sustainable acquisition requirements or the justification for not purchasing the sustainable products shall be noted in the purchase card order log.

## 12.4 RESPONSIBILITIES

### 12.4.1 The Environmental Management Office shall:

In addition to the responsibilities listed in section 2.8 of NPR 8530.1,

a. Compile the Center's annual Green Purchasing Report in accordance with agency data calls.

### 12.4.2 The Center Energy Manager shall:

Fulfill the responsibilities documented in section 2.9 of NPR 8530.1

### 12.4.3 Program Managers/Project Initiators shall:

a. Be knowledgeable of the federal sustainable acquisition requirements and the Justification Documentation process.

b. Consult with appropriate parties (e.g., environmental specialists, contract specialists) early in the procurement process to facilitate the process of procurement planning.

c. Utilize design standards, statements of work, and clauses that include elimination of virgin material requirements, reuse of products, use of recovered materials, energy and water efficiency, recyclability, use of biobased products, and the use of other environmentally preferable products or services.

### 12.4.4 Contracting Officer's Representatives shall:

Ensure contractors collect the necessary information for the annual Green Purchasing Report or other sustainable acquisition requirements and provide the information to the EMO in a timely manner.

### 12.4.5 Directors shall:

a. Collect the necessary information for the annual Green Purchasing Report or other sustainable acquisition requirements and provide the information to the EMO in a timely manner.

b. Review and amend specifications to encourage green purchasing.

### 12.4.6 The Office of Procurement shall:

In addition to the responsibilities listed in section 2.7 of NPR 8530.1,

a. Assist request originators with ensuring statements of work or specifications include: elimination of virgin material requirements, use of recovered materials, reuse of products, life cycle analysis, energy and water efficiency, recyclability, and the use of EPA and USDA-designated items or other environmentally preferable products. These factors shall be considered in acquisition planning for all procurements and in the evaluation and award of contracts.

b. Collect the necessary information for the annual Green Purchasing Report or other sustainable acquisition requirements and provide the information to the EMO in a timely manner.

c. Provide guidance and facilitate acquisition planning with respect to environmentally preferable goods and services, including those available through federal sources of supply.

d. Assist in any market research necessary to determine the availability of environmentally preferable goods and services.

### 12.4.7 Request Initiators, Acquisition Planning Teams, and Credit Card Holders

**shall:**

In addition to the responsibilities listed in section 2.10 of NPR 8530.1,

a. Be knowledgeable of the federal sustainable acquisition programs and the Justification Documentation process.

b. Consult with the Office of Procurement early in the acquisition process to determine how best to integrate green purchasing into purchase requirements.

### 12.4.8 Center Personnel and On-site Contractors shall:

Be knowledgeable of the categories and products in the various sustainable procurement programs and utilize these items whenever practical.

# 13 NATURAL RESOURCES MANAGEMENT

## 13.1 GENERAL

The purpose of this chapter is to provide information on applicable regulatory requirements and procedures related to natural resources management at LaRC.

## 13.2 REQUIREMENTS

13.2.1 LaRC must comply with the Endangered Species Act (ESA), the Migratory Bird Treaty Act (MBTA), the Chesapeake Bay Preservation Act (CBPA), as well as other federal, state, and local laws and regulations pertaining to natural resource management.

13.2.2 Vegetation, particularly trees, plays a major role in habitat and structure temperatures; reducing excess amounts of sediments, nutrients, and chemical surface runoff; providing flood protection; and increasing carbon storage. Therefore, projects shall protect vegetation to the maximum extent technically feasible.

13.2.3 Projects shall preserve areas as much as practical, including replacement of trees, installation of new trees, and screening and protection of features such as storage areas and parking.

13.2.4 LaRC has a Tree City USA designation. Construction and demolition projects shall include landscape plans that meet guidelines for retaining this designation.

13.2.5 The EMO shall be consulted on planting, pruning (other than regular maintenance), and removing trees within LaRC as may be necessary to ensure safety or to preserve or enhance the natural environment.

13.2.6 Pruning shall adhere to the most current versions of ANSI A300 and ANSI Z133.

13.2.7 New landscaping shall include low impact design and xeriscape principles and shall be designed to minimize adverse effects on natural habitats and reduce maintenance in terms of energy, water, manpower, and equipment.

13.2.8 Plant materials shall be selected and planted in accordance with nursery standards, ANSI/ANLA Z60.1.

13.2.9 Vegetated areas shall comply with Virginia Erosion and Stormwater Management Regulations for Land-Disturbing Activities.

13.2.10 Grass clippings shall not be blown or swept into the street and into storm drains. This constitutes an illicit discharge to the stormwater system.

13.2.11 Projects shall be reviewed for the introduction or spread of invasive species. Invasive species management goals are to control invasive species whenever practicable, and promote the restoration of native species.

13.2.12 All trees within, or with a dripline within, an excavation or construction site shall be properly guarded.

13.2.12.1 Per DEQ's Virginia ESC Handbook Chapter 3.38, the limits of clearing shall at a minimum be located outside the drip line of any tree to be retained and, in no case, closer than 5 feet to the trunk of any tree.

13.2.12.2 All building materials, equipment, vehicles, dirt, or other debris shall be kept outside the protection zone.

13.2.13 If a tree designated to be protected is damaged or killed during work, the Project Manager shall coordinate with the EMO to develop a replacement strategy.

13.2.14 During the period of an emergency, appropriate measures may be taken to restore lost or damaged utilities or damage to structures that can adversely impact the safety and health of personnel. The EMO shall be notified of actions as soon as practicable.

13.2.15 The Natural Resources Management guidelines of the LaRC Environmental Construction Specifications shall be followed when planting or removing vegetation, or if vegetation is damaged.

13.2.16 Disturbed turf areas shall be restored to the condition that is equal to or improved from the predevelopment condition.

13.2.16.1 The restored area shall reach final stabilization with established permanent cover.

13.2.16.2 The restored area shall not be considered to have reached final stabilization until it has received review and approval from the EMO.

13.2.17 The guidelines of the LaRC Seeding Construction Specifications shall be followed when seeding or planting.

13.2.18 Litter shall be properly collected in receptables or dumpsters at all facilities and recreational areas.

## 13.3 RESPONSIBILITIES

### 13.3.1 Facility Environmental Coordinators shall:

a. Be familiar with the natural resources around their facility and understand how the facility's actions can affect those natural resources.

b. Notify the EMO of potential threats or projects that may adversely affect natural resources, such as birds and other wildlife and trees.

### 13.3.2 The Environmental Management Office shall:

a. Review projects for adverse impacts to natural resources and to ensure that proper management is coordinated.

b. Validate the need for permit applications.

c. For work occurring in wetlands, complete a Joint Permit Application and submit to the Virginia Marine Resources Commission. Maintain permit files.

d. Determine if work is planned within an area similar to a Resource Protection Area or Resource Management Area and if protection measures are needed.

e. Monitor projects for environmental compliance.

f. Ensure that sustainable design and building practices are utilized to minimize impacts on natural resources.

g. Monitor updates and/or changes to endangered and threatened wildlife and plant listings to determine if LaRC is impacted and update findings in the LaRC ERD.

h. Serve as the point of contact with external regulatory agencies regarding natural resource issues at LaRC.

i. Make final decisions on the care, preservation, replanting, or removal of trees and shrubs on Center.

j. Maintain an accurate inventory of all Center natural resources, including Geographic Information System (GIS) maps and appropriate descriptions.

k. Ensure natural resources are included in the Center Master Plan.

l. Conduct Section 7 consultation under the ESA.

m. Ensure projects comply with policies of the Coastal Zone Management Act (CZMA).

### 13.3.3 Program Managers/Project Initiators shall:

a. Complete an LF 461 for each proposed action that may affect natural resources.

b. Coordinate with the EMO for wetland permit applications, if applicable.

c. Coordinate with the EMO early in the project development for activities that could potentially affect natural resources.

d. Notify the EMO if tree protection, removal, or alteration is anticipated in a project design.

e. Coordinate with the EMO in developing a replacement strategy at the contractor's expense if a tree that was designated to be protected or not noted for removal in the SOW or site drawings is damaged or killed by the contractor performing the work.

f. Ensure designs follow LaRC Seeding Construction Specifications when seeding or planting.

### 13.3.4 Grounds Maintenance Personnel shall:

a. Protect and minimize the disturbance of natural resources and ecosystems while performing grounds maintenance work.

b. Minimize the use of pesticides, herbicides, and fertilizers to the maximum extent practicable and use only EPA-approved products. Pesticide and herbicide applications shall be done by a certified applicator and in accordance with the law.

c. Document each pesticide application. The record shall include the location, date, time, requestor, target pest species, product name of the chemical applied, and the name of the person that applied the pesticide.

d. Notify the EMO if trees or shrubs need to be significantly pruned, removed, or altered.

e. Follow manufacturer's application guidelines for pesticides, herbicides, and fertilizers to ensure that there are no adverse effects on natural resources.

f. Notify the EMO if any disease or other general health problems are observed related to LaRC's natural resources.

g. Provide data to the EMO related to the maintenance of the storm sewer system (amounts of leaf collection, ditch maintenance, sediment removal from catch basins, street sweeping, etc.) as required by the contract.

h. Follow LaRC Seeding Construction Specifications when seeding or planting.

i. Properly dispose of animal carcasses.

j. Capture and remove animals from facilities using live traps and other humane methods to remove animals safely and without harm.

k. Return captured wild animals to the wild and transport captured domestic animals to the local animal shelter.

l. Document each animal control incident. The record shall include the location, date, time, requester, type or species of animal, and disposition.

### 13.3.5 Center Personnel and On-site Contractors shall:

a. Ensure litter and debris is properly collected in receptables or dumpsters to prevent feeding wildlife.

b. Keep picnic and recreational areas free of litter and reduce unnatural food sources accessible to wildlife.

c. Notify the EMO of wildlife interactions or concerns and notify the Protective Services Office for emergency or dangerous wildlife situations.

d. Report stray or feral cats to the Grounds Maintenance contractor.

# 14 OIL AND HAZARDOUS MATERIAL SPILL CONTROL

## 14.1 GENERAL

14.1.1 The purpose of this chapter is to provide information on applicable regulatory requirements and procedures related to oil and hazardous material spill control. Implementing engineering and administrative controls to minimize spill potential is an important goal for the Center.

14.1.2 The Center's Hazardous Materials Spill Contingency Plan, Oil Discharge Contingency Plan, and Oil Spill Prevention Control and Countermeasure Plan have been combined into one document called the LaRC Integrated Spill Contingency Plan (ISCP). The plan is available in the LaRC Langley Management System (LMS) as LPR 8715.12 and is posted on the EMO web site.

14.1.3 Spills may be caused by equipment failure or operational errors. The occurrence of spills can be minimized by implementing good engineering practices and practicable measures, such as proper equipment selection, regular equipment maintenance and inspection, and employee training programs.

## 14.2 REQUIREMENTS

LaRC must comply with EPA spill prevention, control, and contingency planning requirements, as well as other federal and state laws and regulations pertaining to oil and hazardous material spill emergency response and notification.

## 14.3 SPILL RESPONSE

14.3.1 A spill may be detected by visual inspection by personnel or by automated detection systems such as with underground storage tanks.

14.3.2 Immediate action is necessary in the event of an oil or hazardous material spill of any size.

14.3.3 Any LaRC personnel or on-site contractors who discover a release of material from a container, tank, or operating equipment shall call the LaRC Emergency Dispatcher at 911 (from land line phone on Center).

14.3.4 Alternate phone numbers for the Emergency Dispatcher are: 757-864-2222 (when calling from a cell phone) or 757-864-5500 (business number).

14.3.5 The LaRC Emergency Dispatcher will initiate spill response with the LaRC Fire Department.

14.3.6 Detailed spill response procedures are documented in the ISCP (LPR 8715.12).

## 14.4 SPILL CHARACTERIZATION

### 14.4.1 Class I Spills

Class I spills are relatively small in volume (i.e. < 5 gallons), do not result in discharge to the water or to the environment, present low hazard potential to personnel, and can be contained and cleaned up easily. A Class I spill results in:

a. No discharge to the environment (i.e. spill contained completely inside building structure).

b. No discharge of oil or hazardous materials to adjacent waters at LaRC and no violation of applicable water quality standards.

c. No sheen upon or discoloration of surface waters at LaRC, including within storm drains or ditches.

d. A release of material *below* the Hazardous Substance Reportable Quantity.

e. Little risk of personnel injury.

### 14.4.2 Class II Spills

Class II spills involve larger volumes of material and may present significant hazard to personnel or the environment. A Class II spill results in <u>any</u> of the following:

a. Release of oil or hazardous materials to the environment.

b. Discharge of oil or hazardous materials to adjacent waters at LaRC and/or a violation of applicable water quality standards.

c. Discoloration of or sheen upon surface waters at LaRC, including within storm drains or ditches.

d. A release of material above the Hazardous Substance Reportable Quantity.

e. Risk of personnel injury.

## 14.5 RESPONSIBILITIES

### 14.5.1 Facility Environmental Coordinators shall:

a. Oversee management of their facility's oil and/or hazardous materials storage sites.

b. Ensure personnel are aware of the facility's oil and/or hazardous materials storage areas and that appropriate personnel are familiar with spill control and response procedures. Spill control and response procedures are presented during the annual Waste Management Training classes (see section 7.2.6) presented by the EMO.

### 14.5.2 The Environmental Management Office shall:

a. Notify regulatory agencies of spills as required in accordance with the ISCP.

b. Maintain documentation for all Class I and Class II spills per the ISCP.

c. Conduct investigations into the causes of the incident and submit recommendations to prevent reoccurrence.

d. Coordinate disposal of HW generated by spills.

e. Maintain the ISCP as needed and submit to applicable regulatory agencies for approval.

f. Participate in spill events as specified in the ISCP.

### 14.5.3 Contracting Officer's Representatives shall:

Ensure that contractors:

a. Properly manage oil and/or hazardous materials storage sites.

b. Make personnel aware of oil and/or hazardous materials storage areas and familiarize appropriate personnel with spill control and response procedures.

c. Provide a means of spill containment for any oil or hazardous materials stored outside that is compliant with EPA SPCC regulatory requirements.

d. Dispose of spill debris properly (See Chapter 7).

### 14.5.4 Center Personnel and On-site Contractors shall:

a. In the event of a spill, call the LaRC Emergency Dispatcher at 911 (from land line phones on Center) or at 757-864-2222 (from a cell phone).

b. Provide initial information about the spill if known (location, substance spilled, approximate quantity, etc.).

c. Follow the procedures below if working with oil or hazardous materials:

(1) Ensure that all drains located near indoor oil or hazardous material storage areas are plugged or covered with a spill mat. This includes Hazardous Waste SAAs.
(2) Ensure that adequate spill containment equipment (e.g., spill containment pallets) is provided for any oil or hazardous materials stored outside of the facility in compliance with EPA SPCC regulatory requirements.
(3) Ensure that adequate spill absorbent materials (e.g. spill kits) are available and located near oil and hazardous material storage areas.

(4) Ensure that spill debris is managed properly (See Chapter 7).

# 15 EMERGENCY PLANNING AND COMMUNITY RIGHT TO KNOW ACT

## 15.1 GENERAL

15.1.1 The purpose of this chapter is to provide information to LaRC personnel on the regulatory requirements and procedures of the Emergency Planning and Community Right-To-Know Act (EPCRA), which provides citizens and local governments with information concerning potential chemical hazards present in the community.

15.1.2 The consolidated chemical list that includes chemicals subject to reporting requirements under EPCRA is available at the following Web site: https://www.epa.gov/epcra/consolidated-list-lists.

## 15.2 EMERGENCY PLANNING REQUIREMENTS

15.2.1 In accordance with 42 U.S.C. § 11001-11003, LaRC shall notify the State Emergency Response Commission (SERC) and Local Emergency Planning Committee (LEPC) if the Center has on site, at any given time, a quantity of an Extremely Hazardous Substance (EHS) that is equal to or greater than its threshold planning quantity.

15.2.2 The Center shall notify the SERC and LEPC within 60 days of first meeting this qualification.

15.2.3 The Center shall designate an emergency response coordinator and provide the name of that individual to the LEPC.

15.2.4 LaRC shall notify the LEPC of any changes occurring at the Center that may be relevant to emergency planning within 30 days of such changes.

## 15.3 EMERGENCY RELEASE NOTIFICATION REQUIREMENTS

15.3.1 In accordance with 42 U.S.C. § 11004, LaRC shall notify the LEPC and SERC if there is a release into the environment of an EHS or CERCLA-defined hazardous substance equal to or greater than its reportable quantity within any 24-hour period.

15.3.2 The emergency release notification shall be made immediately.

15.3.3 As soon as practical after the release, LaRC shall submit a written follow-up report to the SERC and the LEPC.

15.3.4 The written follow-up notice shall update information included in the initial notice and provide information on actual response actions taken, as well as any known or anticipated health risks associated with the release.

## 15.4 REPORTING REQUIREMENTS

### 15.4.1 Hazardous Chemical Storage Reporting

15.4.1.1 Hazardous chemicals are any substance for which a facility must maintain a Safety Data Sheet (SDS) under the OSHA Hazard Communication Standard.

15.4.1.2 LaRC shall complete the following when it has hazardous chemicals held above specified thresholds, as required by the reporting requirements at 42 U.S.C. § 11021-11022:

a. Submit copies of SDSs or a list of these chemicals to the SERC, LEPC, and local Fire Department within 90 days after the Center first has on hand the hazardous chemicals in amounts equal to or greater than their thresholds, and

b. Submit annually an emergency and hazardous chemical inventory form (Tier II report) by March 1 to the SERC, LEPC, and to the local fire department that has jurisdiction over the facility.

### 15.4.2 Toxics Release Inventory

15.4.2.1 LaRC shall complete the EPA's Toxics Release Inventory (TRI) Form annually, as required by 42 U.S.C. § 11023, when it manufactures, processes, imports, or otherwise uses a listed toxic chemical in excess of specific TRI threshold quantities.

15.4.2.2 The TRI Form  be submitted by July 1 to the appropriate federal (the EPCRA Reporting Center), state (Virginia DEQ), and local organizations (Fire Department and HRSD) and must cover releases and other waste management of the listed toxic chemicals that occurred during the preceding calendar year.

## 15.5 RESPONSIBILITIES

### 15.5.1 Facility Environmental Coordinators shall:

a. Maintain a hazardous chemicals inventory for the facility.

b. Submit and update the hazardous chemicals inventory through the Chemical Material Tracking System (CMTS) (see Chapter 18).

c. Report spills as described in Chapter 14.

### 15.5.2 The Environmental Management Office shall:

Ensure compliance with all notification and reporting requirements documented in sections 15.2 – 15.4 of this chapter.

### 15.5.3 Directors and Supervisors shall:

Ensure facilities/functions have appropriate personnel assigned to maintain hazardous chemicals inventories in CMTS (see Chapter 18).

### 15.5.4 The Protective Services Office shall:

Ensure appropriate emergency response personnel participate in emergency planning with the LEPC and SERC as necessary to comply with the EPCRA regulations.

### 15.5.5 The Safety and Facility Assurance Branch shall:

Ensure appropriate safety personnel participate in emergency planning with the LEPC and SERC as necessary to comply with the EPCRA regulations.

### 15.5.6 Facility Safety Heads shall:

a. Ensure that facility personnel who purchase hazardous chemicals follow the procedures outlined in LMS-CP-4759, LPR 1710.12 and LPR 1710.13, and maintain quantities at the lowest level consistent with needs.

b. Ensure that SDSs are obtained for any hazardous material stored or used at the facility (see Chapter 18).

### 15.5.7 Program Managers/Project Initiators shall:

a. Ensure that contracts for projects involving the use of hazardous materials include the requirements in LaRC Environmental Construction Specifications for the contractor to provide project material usage data to the EMO by the end of the project if short-term, or on an annual basis by January 31 if long-term.

   *Note: Project materials to be tracked include, but are not limited to: metals, asphalt, lead-acid batteries, lead-containing products, paints, fuels and oils, coolants and refrigerants, and other chemicals and products.*

b. Ensure that contracts for projects that generate waste from or are contaminated by a TRI-listed chemical, in order to comply with the waste management provisions of 42 U.S.C. § 11023, include requirements for the contractor to submit waste generation data to the EMO by the end of the project if short-term, or on an annual basis by January 31 if long-term.

c. Ensure that contracts for construction, renovation, demolition, or deconstruction projects include requirements for the contractor to provide recycling and diversion data to the EMO as stated in section 11.3.4 of this document.

### 15.5.8 Contracting Officer's Representatives shall:

Ensure that contractors:

a. Submit usage data to the EMO by January 31 of each year listing all chemicals and hazardous materials used on-site during the previous calendar year but not recorded in CMTS. This includes materials used by subcontractors, as well as those project materials not customarily tracked in CMTS and required in accordance with NASA LaRC Environmental Construction Specifications.

b. Submit waste generation data to the EMO by January 31 of each year for projects that generate waste from or are contaminated with a TRI-listed chemical.

c. Submit recycling and diversion reports from construction, renovation, demolition, or deconstruction projects to EMO as stated in section 11.3.5 of this document.

# 16 UNDERGROUND AND ABOVEGROUND STORAGE TANKS

## 16.1 GENERAL

16.1.1 This chapter describes policies and requirements for design, construction, operation, maintenance, monitoring, and reporting of underground and aboveground petroleum storage tanks.

16.1.2 The policies and requirements of this chapter apply to all LaRC personnel and on-site contractors involved in the installation and use of Underground Storage Tanks (USTs) and Aboveground Storage Tanks (ASTs) at the Center.

## 16.2 REQUIREMENTS

16.2.1 LaRC shall comply with federal and state laws and regulations for USTs and ASTs.

16.2.2 All petroleum storage tank systems at LaRC shall meet the following requirements:

a. All petroleum storage tank systems shall meet the current regulatory requirements.

b. Tanks shall be designed, constructed, and installed using nationally recognized standards and industry codes.

c. Regulatory notifications and/or registrations are required for new tank installations, changes to existing tanks, and certain changes in operation.

d. The following regulatory requirements shall be met for tank closure and/or removal:

   (1) USTs shall be closed by either removing them from the ground or leaving them in place after being drained, cleaned, and filled with inert material.
   (2) ASTs shall be completely empty prior to removal, in accordance with 9 VAC 91-120(c).
   (3) All liquids, sludges, and vapors shall be removed from the AST and associated piping.
   (4) All wastes removed shall be disposed of in accordance with all applicable state and federal requirements.
   (5) For tanks being closed in place, the tank shall be rendered vapor free. Provisions shall be made for adequate ventilation to ensure that the tank remains vapor free.
   (6) Vent lines shall remain open and maintained in accordance with the applicable codes.
   (7) All access openings shall be secured (normally with spacers to assist ventilation).
   (8) The AST shall be secured against tampering and flooding.

(9) The name of the product last stored, the date of permanent closure and PERMANENTLY CLOSED shall be stenciled in a readily visible location on the AST.
(10) Piping shall be disconnected.
(11) All pipes being closed in place shall be vapor free and capped or blind flanged.

e. Regulations require tanks and oil filled equipment to be inspected and/or monitored regularly for signs of product releases. Tank owners/operators shall investigate any suspected release. Call the LaRC Emergency Dispatcher at 911 (from land line phone on Center) or at 757-864-2222 (from a cell phone) to report leaks and spills.

f. Facility personnel who perform monthly AST and UST inspections shall attend initial regulatory required training when first assigned the responsibility, and annual training thereafter.

g. Owners and operators of UST systems are required to designate Class A, Class B, and Class C operators for each UST system.

h. UST operators shall be trained per regulatory requirements of 9 VAC-25-80-125.

i. Tank owners/operators shall be responsible for ensuring annual tank maintenance is completed on time and maintenance job plans are kept in MAXIMO.

j. Maintenance of AST systems shall include visual inspection, operational check of level and leak detection gauges, and service and inspection of dispensing apparatus (if so fitted).

k. Maintenance of UST systems shall include visual inspection of hatches and items visible above ground, operational check of level and leak detection systems, service and inspection of dispensing apparatus, hydrostatic testing of the spill bucket, leak testing of pressurized underground piping, and timely repair of deficient items.

## 16.3 RESPONSIBILITIES

### 16.3.1 Facility Environmental Coordinators shall:

a. Ensure all mandatory monthly aboveground storage tank and oil filled equipment inspections are performed as required and that tank inspections are documented using the LF 410 checklist.

b. Send copies of the completed checklist to the EMO via email, to mail stop 133, or fax to 757-864-6657.

c. Ensure facility personnel who inspect ASTs and USTs attend training (see section 16.2.3(f)).

d. Ensure all personnel who operate tank systems at their facilities are trained in filling, dispensing, and monitoring procedures.

e. Notify the EMO if any USTs or ASTs will be installed, removed, or closed at their facility by submitting an LF 461.

f. Notify the EMO if there are any changes in service or changes to the products to be stored in the tanks.

**16.3.2 The Environmental Management Office shall:**

a. Report leaks or releases to appropriate state and/or federal agencies, as required.

b. Maintain and update, when necessary, storage tank registration and notification forms and submit forms to regulatory agencies as required.

c. Review design of storage tank systems to ensure compliance with current regulatory requirements.

d. Ensure that Class A, Class B, and Class C operators are designated for each UST system.

e. Ensure operators are trained in accordance with the regulatory requirements.

f. Oversee the inspection program to ensure that AST, UST, and oil filled equipment inspections are being performed as required.

g. Provide initial training to new inspectors and annual refresher training thereafter.

**16.3.3 Program Managers/Project Initiators shall:**

a. Submit design and construction specifications to the EMO prior to installation of any petroleum storage tank system.

b. Design or oversee the design of all petroleum storage tank systems to ensure compliance with the latest regulatory requirements.

**16.3.4 Center Personnel and On-Site Contractors shall:**

a. Report any releases from petroleum storage tanks by calling the LaRC Emergency Dispatcher at 911 (from NASA land line phone) or at 757-864-2222 (from a cell phone).

b. Attend annual Waste Management and Spill Response training (see Section 7.2.6) if responsible for: ASTs, USTs, or oil filled equipment.

c. If operating tank systems, follow the requirements of this chapter and the guidelines below:

(1) Acquire training and demonstrate proficiency in filling, dispensing, and monitoring procedures.
(2) In the event of a spill or leak, immediately call the LaRC Emergency Dispatcher at 911 (from NASA land line phone) or at 757-864-2222 (from a cell phone).
(3) Monitor leak detection devices (where installed) and take corrective action if leakage is indicated.
(4) Ensure that adequate maintenance is performed on each tank to ensure satisfactory performance.
(5) As assigned, perform periodic inspections of petroleum tanks and oil filled equipment and maintain inspection reports on file.
(6) Monitor filling of tanks to prevent spills and overflows.
(7) Comply with the Center's ISCP, LPR 8715.12.

# 17 HISTORIC AND CULTURAL RESOURCES

## 17.1 GENERAL

17.1.1 This chapter provides information on applicable regulatory requirements and procedures related to historic and cultural resources at LaRC.

17.1.2 LaRC has three facilities and/or structures that are National Historic Landmarks and over 140 facilities or structures eligible for listing in the National Register of Historic Places (National Register). Additionally, the entire West Area and three small portions of the East Area have been listed in the National Register as the LaRC Historic District.

17.1.3 LaRC has one archaeological site listed in the National Register and 11 sites eligible for listing.

17.1.4 The inventory of LaRC's cultural resources is maintained by the Center's Cultural Resources Manager (CRM).

## 17.2 REQUIREMENTS

17.2.1 As a federal facility, LaRC is required to ensure the protection and proper management of its cultural resources, including historic and prehistoric properties.

17.2.2 In managing the Center's cultural resources, LaRC must comply with the National Historic Preservation Act (NHPA), the Archaeological Resources Protection Act (ARPA), as well as other laws and regulations, EOs, Programmatic Agreements (PAs), Memorandum of Agreements (MOAs), and NASA procedural requirements.

17.2.3 LaRC must consult with the Virginia State Historic Preservation Office (SHPO), tribes, and other parties with a vested interest in historic properties regarding actions that may affect its cultural resources.

17.2.4 For Center projects with the potential to affect cultural resources listed or eligible for listing in the National Register, the Center CRM shall ensure early coordination with the appropriate regulatory agencies.

17.2.5 Information about LaRC's archaeological sites shall not be distributed internally or externally without coordinating with the Center CRM. This includes but is not limited to GIS layers and maps of LaRC's archaeological sites.

## 17.3 RESPONSIBILITIES

### 17.3.1 The Center Director shall:

Fulfill the responsibilities documented in section 1.3.1 of NPR 8510.1, "NASA Cultural Resources Management."

### 17.3.2 The Environmental Management Office shall:

a. Assist the Center CRM in managing the Center's cultural resource management program.

b. Review project design and specification documentation for issues related to cultural resources.

c. Assist with the preparation of cultural resource surveys and documentation as needed.

### 17.3.3 The Center Cultural Resources Manager shall:

In addition to the responsibilities listed in sections 1.3.2 of NPR 8510.1,

a. Ensure LaRC complies with the provisions of existing agreement documents, including PAs and MOAs.

b. Review projects and consider the impact of actions and decisions on the Center's cultural resources, and where feasible, take steps to avoid or reduce adverse effects.

   *Note: Figure 17-1 provides a general overview of the decision framework for LaRC CRM review. The LaRC CRM review is ordinarily initiated by submittal of an LF 461.*

c. Serve as a consultant on the Source Selection Evaluation Board (SSEB) on design-build projects as needed.

d. Ensure that artifacts recovered during archaeological survey work are properly curated and sent to the Virginia Department of Historic Resources (VDHR) for archiving.

e. Provide input as needed to the LaRC property disposal and records management offices and Exhibits Manager to identify and determine retention/disposition of the Center's historic personal property, including historic artifacts and records.

### 17.3.4 The Logistics Management Office shall:

a. Ensure that disposition of LaRC property is carried out in accordance with NPR 4310.1, "Artifact Identification and Disposition."

b. Notify the Center CRM and Exhibits Manager regarding potential historic artifacts that are turned in for disposal.

### 17.3.5 Program Managers/Project Initiators shall:

a. Submit an LF 461 to the EMO for any project not listed on the Excluded Activities List (available at: https://gis-www.larc.nasa.gov/LF461).

*Note: An LF 461 shall be submitted for any project requiring a digging permit. The LF 461 shall be submitted at least 5 working days prior to project startup (does not apply in emergency situations).*

b. Ensure project design plans are submitted to the EMO at the 35, 60, 90 and 100 percent phases.

*Note: The most current version of the LaRC Environmental Construction Specifications and the Center Operations Directorate Facilities Engineering Standards – Environmental and Energy shall be used and shall supersede all other environmental specifications and standards (e.g., UFGS, USACE, etc.) that are currently available.*

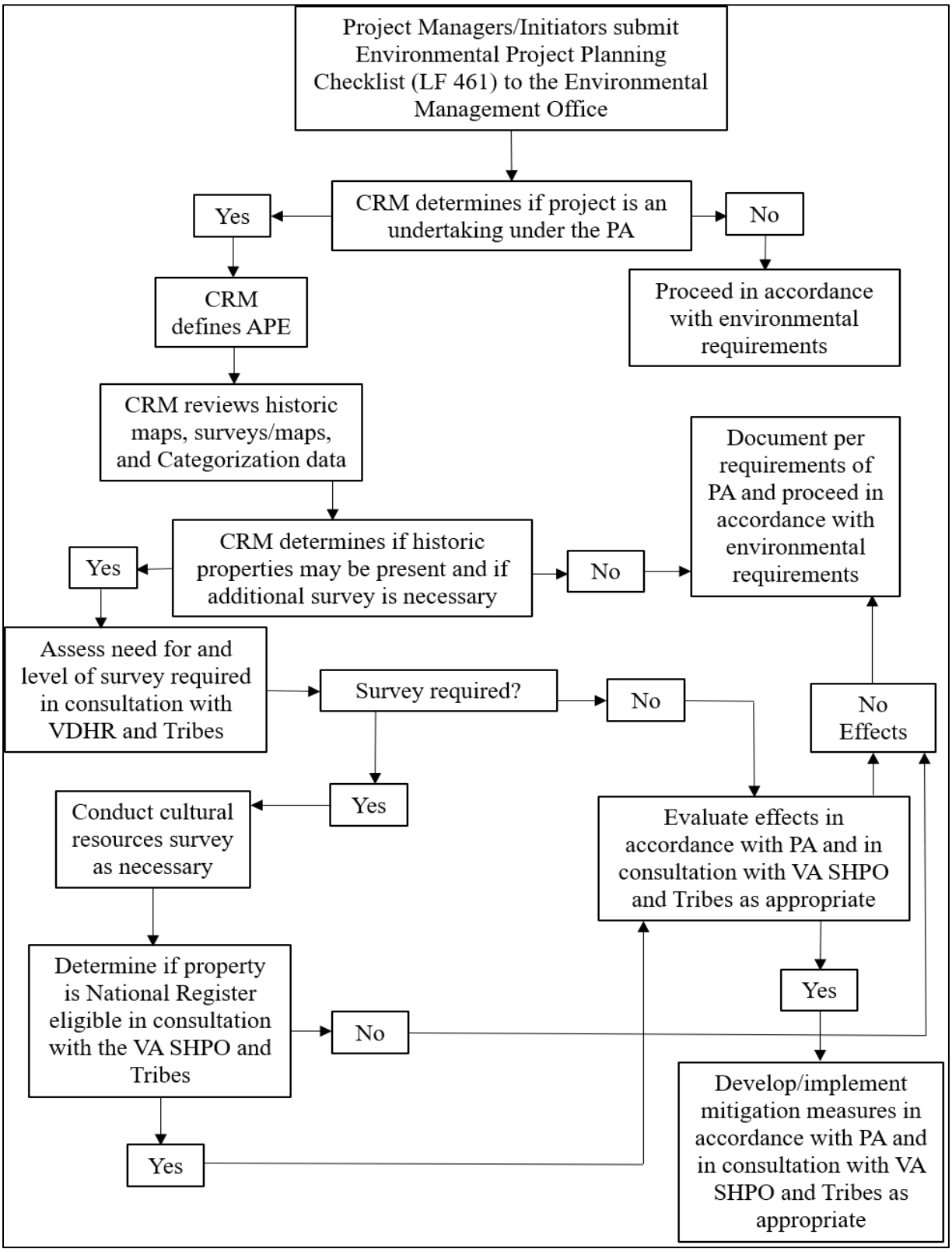
c. In the case of a design-build project, ensure the detailed set of requirements and restrictions for construction projects and requests for proposals include architectural requirements consistent with the PA and in line with LaRC's historic district and that all requirements are addressed at the appropriate design milestone.

d. Ensure that the Center CRM is included as a consulting party on the SSEB as needed.

e. Ensure funding is available to perform surveys and/or mitigation for those projects that may impact cultural resources.

f. Notify the Center CRM immediately if an activity results in discovery of archaeological resources or human remains.

Figure 17-1
**Overview of Decision Framework for the LaRC CRM Review**



# 18 INVENTORY TRACKING OF HAZARDOUS MATERIALS

## 18.1 GENERAL

18.1.1 The purpose of this chapter is to provide information on applicable regulatory requirements and Center procedures related to hazardous material inventory tracking at LaRC.

18.1.2 Hazardous materials include any substance that is a “physical hazard or a health hazard, a simple asphyxiant, combustible dust, pyrophoric gas, or hazard not otherwise classified” as defined by OSHA in 29 CFR 1910.1200.

18.1.3 Proper inventory tracking provides the EMO with significant data necessary for environmental regulatory reporting.

## 18.2 REQUIREMENTS

18.2.1 The Chemical Material Tracking System (CMTS) shall be used by all Center personnel and on-site contractor personnel to comply with inventory requirements in this chapter, environmental reporting statutes, LPR 1710.12, and LPR 1710.13.

18.2.2 LaRC’s requirements for the safe use, handling, storage, and labeling of hazardous materials are found in LPR 1710.12 and LPR 1710.13, which are available in LMS.

18.2.3 In accordance with DOT’s Pipeline and Hazardous Materials Safety Administration requirements for shippers and carriers of certain types of quantities of hazardous materials to develop and implement security plans, LaRC has developed a HM/HW Security Plan, as described in section 7.2.4.2. The plan is available by contacting the EMO.

18.2.4 **Inventory Management**

18.2.4.1 Inventory tracking of hazardous materials at LaRC originates with the submittal and approval of an LF 44, Hazardous Material - Procurement, Inventory, and Storage Record. The LF 44 is detailed in LMS-CP-4759, “Acquisition of Hazardous Materials,” which shall be followed for the acquisition of all hazardous materials before they are brought on site.

18.2.4.2 Per LMS-CP-4759, all hazardous materials shall be added from the LF 44 to the CMTS inventory of the facility that will have ultimate control (storage and/or usage) over the materials.

18.2.4.3 Each container added to a CMTS inventory shall be identified by a unique CMTS container ID number generated by the system for tracking purposes.

18.2.4.4 When hazardous materials are used, expended, or disposed of for any reason, the electronic CMTS record for the materials shall be consumed from the CMTS inventory.

18.2.4.5 Per LMS-CP-4759 and LPR 1710.12, CMTS shall be utilized to record the transfer of hazardous material containers to other facilities onsite or to offsite locations by submitting a Hazardous Materials Transfer Approval Form (Transfer LF 44).

18.2.4.6 The shipping and transporting of hazardous materials onsite or offsite during transfer shall be conducted in accordance with the requirements of LPR 1710.12.

18.2.5 **Labeling**

18.2.5.1 All hazardous material containers used by LaRC employees and stored on Center shall be affixed with a CMTS label, which are generated by the system after a hazardous material is added to a CMTS inventory.

18.2.5.2 Secondary containers shall be labeled in accordance with the requirements of LPR 1710.12.

18.2.6 **Safety Data Sheets**

18.2.6.1 The SDS library is a key component in the generation of environmental compliance reports and SDSs for materials currently used at the Center are maintained through the CMTS SDS Library.

18.2.6.2 In accordance with LMS-CP-4759 and LPR 1710.12, current and up-to-date SDSs shall be required for all hazardous materials on the Center.

18.2.6.3 Current and up-to-date SDSs shall be submitted to the CMTS online library to ensure proper calculations for environmental reporting, as well as to have important health and safety information available.

18.2.7 If hazardous materials are poorly managed, they may have to be disposed of as HW (see Chapter 7). If mismanaged hazardous materials result in additional HW disposal costs, the responsible organization may be charged for the disposal.

18.2.8 All personnel who use, handle, or request disposal of hazardous materials shall attend mandatory Waste Management Training annually, as specified in section 7.2.6 of this document.

## 18.3 RESPONSIBILITIES

### 18.3.1 Facility Environmental Coordinators shall:

a. Function as their facility's CMTS inventory manager and perform duties as specified in section 18.3.8 of this chapter or ensure other CMTS inventory managers assigned to the facility are performing the duties specified in section 18.3.8.

b. Assist the Facility Safety Head in ensuring their facility stores all hazardous materials in accordance with LPR 1710.12 and LPR 1710.13.

c. Ensure that facility personnel responsible for hazardous material tracking understand the policies and procedures related to CMTS and receive appropriate training.

d. Assist facility personnel in minimizing hazardous material usage and review operations to ensure that they are conducted efficiently.

e. Participate with the EMO in conducting hazardous material minimization or substitution P2 opportunity assessments.

f. Identify, develop, and implement P2 projects. Substitute less toxic materials when practical to use them.

g. Notify their Branch/Office Head when transferring, retiring, or other changes affecting FEC assignment occur.

**18.3.2 The Environmental Management Office shall:**

a. Ensure that hazardous material tracking at the Center is carried out in an environmentally responsible manner. The EMO is the functional proponent of the CMTS database and has primary responsibility to update and maintain the CMTS system.

b. Provide support, guidance, policies and procedures, training, and assistance to LaRC personnel using the CMTS.

c. Send all CMTS users quarterly notifications indicating due dates for the inventory certifications.

d. Use the CMTS capability to help compile the annual required regulatory reports.

e. Ensure internal compliance with the LaRC HM/HW Security Plan and update as necessary.

**18.3.3 Directors and Supervisors shall:**

a. Ensure facility personnel follow the inventory tracking procedures outlined in this chapter.

b. Assign the necessary personnel to function as CMTS inventory managers to perform the duties specified in 18.3.8 of this chapter.

*Note: A FEC, assigned by a Director per LAPD 8500.1, functions as a facility's CMTS inventory manager. However, additional personnel may also be assigned to perform CMTS inventory manager duties in collaboration with the assigned FEC.*

### 18.3.4 Program Managers/Project Initiators shall:

Ensure that contracts for projects involving the use of hazardous materials include the requirements in LaRC Environmental Construction Specifications for the contractor to provide project material usage data to the EMO by the end of the project if short-term, or on an annual basis by January 31 if long-term.

*Note: Project materials to be tracked include, but are not limited to: metals, asphalt, lead-acid batteries, lead-containing products, paints, fuels and oils, coolants and refrigerants, and other chemicals and products.*

### 18.3.5 Contracting Officer's Representatives shall:

Ensure that contractors provide the EMO with a list of chemicals and hazardous materials used on-site but not recorded in CMTS (e.g., materials used by subcontractors or project materials not customarily tracked in CMTS) at the end of the project if short-term or by January 31 of each year if long-term.

### 18.3.6 Facility Safety Heads shall:

a. Review and approve or reject LF 44s.

b. Ensure that hazardous materials are purchased in accordance with procedures established in LPR 1710.12, to include using the electronic LF 44 approval process as outlined in LMS-CP-4759.

c. Ensure that facility personnel are trained in proper hazardous material management practices.

d. Ensure that SDSs are obtained for all hazardous materials prior to purchasing or receiving the items.

e. Assist facility CMTS inventory managers in maintaining an accurate inventory of hazardous materials.

f. Ensure hazardous materials are stored in accordance with LPR 1710.12 and LPR 1710.13.

### 18.3.7 The Logistics Management Office shall:

a. Provide the following information to the EMO on an annual basis for all materials requiring SDSs issued from stock:

   (1) National Stock Number (NSN)
   (2) Customer

(3) Date of issue
(4) Unit description
(5) Quantity on-hand, maximum quantity on-hand, and re-order point
(6) Unit of issue
(7) Unit conversion code or other description of the unit of issue
(8) Total quantity (unit of issue) issued for each NSN

b. Maintain demurrage cylinder data within the CMTS Cylinder Module.

c. Maintain facility inventory using CMTS and following the policies and procedures within this chapter.

d. Adhere to LaRC's transportation security policies and procedures outlined in the HM/HW Security Plan.

**18.3.8 CMTS Inventory Managers shall:**

a. Track hazardous materials in accordance with the CMTS policies and procedures.

b. Certify accuracy of chemical inventories by submitting Quarterly Inventory Update Certifications, found in CMTS Inventory Maintenance.

(1) To properly and accurately certify the inventory, the hazardous materials in the facility shall be physically compared to the items listed in the CMTS inventory and reconciled accordingly.
(2) At a minimum, reconcile the physical inventory with the CMTS inventory quarterly (March 31, June 30, September 30, and December 31).

c. Facilities with no hazardous materials shall submit an annual No Hazardous Materials Certification by January 1 of each year. The form can be found at https://emis.ndc.nasa.gov/cmts/instruct/manuals/ under the Inventory Update Guide.

d. Ensure that each hazardous material is properly identified and labeled with a CMTS label.

e. Ensure that bulk containers have been correctly identified in CMTS by verifying that the container identification numbers begin with "b."

f. Ensure that each hazardous item in the CMTS inventory has a corresponding SDS and that a copy of the SDS has been submitted to the EMO for entry into the online SDS library.

g. Manage the chemical inventory stored or used at the facility in accordance with all applicable health, safety, and environmental regulations found in this LPR, LPR 1710.12, and LPR 1710.13.

h. Manage the chemical inventory to reduce waste from shelf-life expiration.

(1) Where possible, and in accordance with all health and safety requirements, transfer unused or excess chemicals to other facilities where they can be used prior to reaching shelf-life expiration date.
(2) The cost of disposing of expired chemicals as HW may become the responsibility of the organization.

i. Attend mandatory training on proper disposal of hazardous materials. These procedures are presented during the annual Waste Management Training classes (see section 7.2.6).

**18.3.9 The Safety and Facility Assurance Branch shall:**

a. Review and approve or reject LF 44s.

b. Notify the EMO of concerns that pertain to hazardous material tracking.

c. Provide technical expertise and administrative guidance to LaRC personnel for the safe use, storage, and handling of hazardous materials.

d. Ensure that hazardous material management at the Center is carried out in accordance with OSHA and other health and safety requirements.

e. Assist personnel in the interpretation of SDS technical data.

f. Supply SDSs, if available, from SDS databases or assist in the acquisition and technical interpretation of proprietary or trade secret SDS information.

g. Perform the following duties as the LF 44 Coordinator:

(1) Review LF 44s to ensure the electronic SDSs in CMTS correspond to the hazardous materials being requested, and that the SDSs are accurate and current.
(2) Add new SDSs to the CMTS library.
(3) Notify the EMO of concerns that pertain to the SDS library in CMTS.

**18.3.10 Center Personnel and On-site Contractors shall:**

a. Ensure that the FEC, FSH, and facility CMTS inventory managers are notified when hazardous materials are brought into a facility, including Purchase Requisition (PR), credit card purchase, or vendor samples.

b. Ensure that the FEC and facility CMTS inventory managers are notified when hazardous materials are expended or require disposal so the materials can be tracked in CMTS.

c. Use the electronic LF 44 approval process, in accordance with LPR 1710.12 and LMS-CP-4759, to purchase hazardous materials and for sample products received from vendors.

d. If using, handling, or requesting disposal of hazardous materials, attend mandatory training on proper disposal procedures. These procedures are presented during the annual Waste Management Training classes (see section 7.2.6).

e. Identify and substitute less toxic materials when practical to use them.

## Appendix A - Glossary of Terms

**Archeological Resources Protection Act.** Protects archeological resources and sites on public lands and Indian lands.

**Asbestos.** Naturally occurring family of fibrous mineral silicates that were incorporated into a variety of building materials because they exhibit commercially desirable properties. ACBM can be divided into friable and non-friable categories. Friable materials can be crumbled, pulverized, or reduced to powder by hand pressure and are therefore more likely to release fibers when disturbed or damaged. Non-friable materials can also be a source of fiber release when cut, sanded, or drilled.

**Biobased.** Commercial or industrial products (other than food or feed) that are composed in whole, or in significant part, of biological products, renewable agricultural materials (including plant, animal, and marine materials), or forestry materials.

**BioPreferred.** Program managed by the USDA to increase the purchase and use of biobased products. The USDA designates categories of biobased products that are required for purchase by federal agencies and their contractors. As a part of this process, minimum biobased content for each category is specified.

**Categorical Exclusion (CatEx).** "Categorical Exclusion" means a category of actions that do not individually or cumulatively have a significant effect on the human environment and that have been found to have no such effect in procedures adopted by a federal agency in implementation of these regulations and for which, therefore, neither an EA or EIS is required.

**Chemical Material Tracking System (CMTS).** LaRC's online hazardous material inventory approval and tracking database. CMTS is also used to maintain an online library of Material Safety Data Sheets.

**Chesapeake Bay Preservation Act.** Program enacted by the Virginia General Assembly to protect and improve water quality in the Chesapeake Bay by requiring the implementation of effective land use management practices.

**Clean Air Act.** Sets forth the requirements for air quality control programs. The objective of air quality control programs is "to protect and enhance the quality of the Nation's air resources so as to promote public health and welfare and the productive capacity of its population." Requires prevention, control, and abatement of air pollution from stationary and mobile sources (also includes asbestos removal and disposal regulations, and regulates the use of ozone depleting substances.)

**Clean Water Act.** Regulates discharge of pollutants into waters of the U.S. from any point source including industrial facilities and sewage treatment plants. Regulates storm water runoff from certain industrial sources. Requires reporting and cleanup of oil and hazardous substance spills in waterways. Protects waterways. Requires a permit

to dredge, fill, or disturb wetlands. Requires spill prevention plans for sites that store petroleum products.

**Coastal Zone Management Act (CZMA).** Establishes a national policy for the management, beneficial use, protection, and development of the land and water resources of coastal zones. Requires that federal actions that are reasonably likely to affect any land or water use or natural resource of the coastal zone be consistent with enforceable policies of a State's federally-approved coastal management program.

**Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA),** amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986. Regulates cleanup of abandoned HW sites. CERCLA also known as “Superfund” regulates releases of hazardous substances into the environment.

**Construction of Facilities (CoF).** Those activities directed toward construction of new facilities; repair, rehabilitation, and modification of existing facilities; acquisition of related facility equipment; design of facilities projects; and advance planning related to future facilities needs.

**Electronic Product Environmental Assessment Tool (EPEAT).** A global registry for electronics managed by the Green Electronics Council. The Council evaluates equipment on 51 environmental criteria - 23 required and 28 optional - that measure a product’s efficiency and sustainability attributes. Products in the registry are rated Gold, Silver, or Bronze, depending on how many optional criteria they meet.

**Emergency Planning and Community Right-to Know Act of 1986 (EPCRA).** Provides local governments with information concerning possible chemical hazards in the community. Requires emergency planning for releases of extremely hazardous substances. Requires facilities to publicly report releases of toxic chemicals into the environment.

**Endangered Species Act of 1973 (ESA).** Requires that all actions not jeopardize, threaten, destroy, or adversely impact critical habitats or the existence of endangered species.

**Energy Independence and Security Act of 2007 (EISA).** Promotes the goal of moving the United States toward greater energy independence and security. Increases the production of clean renewable fuels; increases the efficiency of products, buildings, and vehicles; promotes research and development of greenhouse gas capture and storage options; and improves the energy performance of the Federal Government.

**Energy Policy Act of 2005 (EPACT 2005).** Provides annual energy reduction and renewable energy purchase goals for federal facilities. Requires procurement of energy-efficient products and provides updated federal green building standards with emphasis on energy efficiency and sustainable design principles.

**Environmental evaluation.** The analysis of the environmental effects of proposed actions, including alternative proposals. The analyses are carried out from the very earliest of planning studies for the action in question, and are the materials from which the more formal environmental assessments, environmental impact statements, and public record of decisions are made.

**Environmental Assessment (EA)**. A concise public document prepared by a federal agency to determine the environmental impact of a proposed action and alternatives. An EA briefly provides sufficient evidence and analysis for determining whether to prepare an EIS or a FONSI.

**Environmental Impact Statement (EIS).** A document that is prepared for an action that may have significant impact on the quality of the human environment or that has the potential for controversy in environmental effects. The primary purpose of an EIS is to serve as a device for use by officials to plan actions and make decisions. It provides information that must be considered throughout the decision process. An EIS is filed with the EPA and published and distributed widely for public comment.

**EPA Comprehensive Procurement Guidelines (CPG).** Part of EPA's effort to promote the use of materials recovered from solid waste. Buying recycled-content products ensures that the materials collected in recycling programs will be used again in the manufacture of new products. EPA is required to designate products that are or can be made with recovered materials, and to recommend practices for buying these products. Once a product is designated, procuring agencies are required to purchase it with the highest recovered material content level practicable

**Farm Security and Rural Investment Act of 2002.** Requires federal agencies to establish procurement programs for the purchase of biobased products.

**Federal Acquisition Regulation (FAR).** Establishes requirements for executive agencies when acquiring goods and services.

**Finding of No Significant Impact (FONSI).** A document prepared by the EMO and signed by the Center Director which presents the reasons an action will not have a significant effect on the human environment and for which an EIS will not be prepared. A notice of issuance of the FONSI is typically published in a local newspaper with links to the FONSI and supporting EA.

**Hazardous and Solid Waste Amendments to RCRA.** Requires the phasing out of land disposal of hazardous waste. Mandates increased enforcement authority for EPA, more stringent hazardous waste management standards, and a comprehensive underground storage tank program.

**Migratory Bird Treaty Act (MBTA).** Makes it illegal for people to "take" migratory birds, their eggs, feathers, or nests. "Take" is defined in the MBTA to include by any means or in any manner, any attempt at hunting, pursuing, wounding, killing,

possessing, or transporting any migratory bird, nest, egg, or part thereof. The statute does not discriminate between live or dead birds and also grants full protection to any bird parts, including feathers.

**National Energy Conservation Policy Act of 1978 (NECPA).** Serves as the underlying authority for federal energy management goals and requirements. Provides for the regulation of interstate commerce, to reduce the growth in demand for energy in the United States, and to conserve nonrenewable energy resources without inhibiting beneficial economic growth. The NECPA is the foundation of most federal energy requirements and is regularly updated and amended by subsequent laws and regulations.

**National Environmental Policy Act of 1969 (NEPA).** Mandates federal agencies to "utilize a systematic, interdisciplinary approach to ensure the integrated use of the natural and social sciences and the environmental design arts in planning and in decision making which may have an impact on man's environment." Requires detailed statements on the potential environmental impacts of major federal actions to be included in every recommendation or report on proposals to legislation.

**National Historic Preservation Act (NHPA)** Requires federal agencies to establish cultural resource preservation programs and to consider the effects of their proposed actions (e.g., construction, leasing, and land transactions) on cultural and historic resources.

**Noise Control Act of 1972.** Establishes noise standards and regulates noise emissions from commercial products, such as transportation and construction equipment.

**Notice of Intent.** A notice that an EIS will be prepared and considered. It summarizes issues uncovered in the EA, if one was completed. The notice shall briefly describe the proposed action and possible alternatives, describe the agency's proposed scoping process including whether, when, and where any scoping meeting will be held, and state the name and address of a person within the agency who can answer questions about the proposed action and the EIS. This notice is required by law to allow interested parties to participate in the EIS development or to review it upon completion.

**Pollution Prevention Act of 1990.** Mandates a national policy creating a hierarchy of preferred waste management approaches: source reduction, recycling, treatment, and disposal, all to be conducted in an environmentally safe manner. The Act specifies the hierarchical strategy as follows: (1) pollution should be prevented or reduced at the source whenever feasible; (2) pollution that cannot be prevented should be recycled in an environmentally safe manner whenever feasible; (3) pollution that cannot be prevented or recycled should be treated in an environmentally safe manner whenever feasible; and (4) disposal or other releases into the environment should be employed only as a last resort and should be conducted in an environmentally safe manner. Source reduction includes equipment or technology changes; process or procedure

modifications; reformation or redesign of products; substitution of materials; and improvements in housekeeping, maintenance, training, or inventory control.

**Polychlorinated Biphenyl (PCB).** Class of chlorinated hydrocarbons that were developed in the 1940s and used in a variety of applications because of their chemical stability, low flammability, and low electrical conductivity. Due to their extreme stability, they do not break down in the environment and tend to bioaccumulate through the food chain.

**Quiet Communities Act of 1978.** Established a nationwide "Quiet Communities Program," and tightened aircraft noise regulations, setting specific decibel limits for civil aircraft.

**Record of Decision (RoD).** A document that describes how environmental considerations, and the EIS itself, entered into the decision. It is not published in the Federal Register, but made available upon request.

**Resource Conservation and Recovery Act of 1976 (RCRA).** Gives EPA the authority to control hazardous waste (HW) from "cradle to grave". Under this concept, the HW generator is ultimately responsible for the waste from the time it becomes a waste until it is properly disposed of and no longer poses a threat to human health or to the environment. Establishes guidelines and standards for solid and nonhazardous waste generation, transportation, treatment, storage, and disposal. Requires management of underground storage tanks (USTs) and cleanup of hydrocarbon contamination. Establishes a national policy to minimize the generation of HW and the land disposal of HW by encouraging process substitution, materials recovery, properly conducted recycling and reuse, and treatment. Mandates that HW generators and treatment, storage, and disposal facilities have a HW minimization program in place.

**Rivers and Harbors Appropriation Act of 1899**. First federal water pollution regulation in the United States. It focuses on protecting navigation, protecting waters from pollution, and acted as a precursor to the Clean Water Act. The Act makes it illegal to discharge refuse matter of any kind into the navigable waters, or tributaries thereof, of the United States without a permit. It also makes it illegal to excavate, fill, or alter the course, condition, or capacity of any harbor, channel or other specified areas without a permit. This Act is administered by the U.S. Army Corps of Engineers.

**Significant New Alternatives Policy (SNAP).** The program the EPA uses to evaluate and regulate substitutes for the ozone-depleting chemicals that are being phased out under the stratospheric ozone protection provisions of the Clean Air Act.

**Total Maximum Daily Load (TMDL).** A TMDL is a calculation of the maximum amount of a pollutant that a waterbody can receive and still safely meet water quality standards.

**Toxic Substances Control Act (TSCA).** Prohibits or limits the manufacture, process, distribution in commerce, use, or disposal, of a chemical substance. Regulates the management, disposal, and labeling of materials such as asbestos and PCBs.

## Appendix B - Acronyms and Abbreviations

| | |
|---|---|
| ACBM | Asbestos containing building materials |
| ANSI | American National Standards Institute |
| ARPA | Archaeological Resources Protection Act |
| AST | Aboveground Storage Tank |
| BMP | Best Management Practice |
| C&D | Construction and Demolition |
| CAA | Clean Air Act |
| CatEx | Categorical Exclusion |
| CEQ | Council on Environmental Quality |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| CFR | Code of Federal Regulations |
| CMTS | Chemical Material Tracking System |
| CO | Contracting Officer |
| COR | Contracting Officer's Representative |
| CGP | Construction General Permit |
| CP | Center Procedures |
| CPG | Comprehensive Procurement Guidelines |
| CRM | Cultural Resources Manager |
| CRMP | Cultural Resource Management Plan |
| CWA | Clean Water Act |
| CS | Contracting Specialist |
| CZMA | Coastal Zone Management Act |
| dB | Decibels |
| dBA | A-weighted decibels |
| DEQ | Department of Environmental Quality |
| DOE | Department of Energy |
| DOT | Department of Transportation |
| EA | Environmental Assessment |
| EEP | Energy Efficiency Panel |
| EET | Energy Efficiency Team |
| EHS | Extremely Hazardous Substance |
| EIS | Environmental Impact Statement |
| EISA | Energy Independence and Security Act |
| EMCS | Energy Management Control System |
| EMO | Environmental Management Office |
| EMS | Environmental Management System |
| EPA | Environmental Protection Agency |
| EPACT | Energy Policy Act |
| EPEAT | Electronic Product Environmental Assessment Tool |
| EPCRA | Emergency Planning and Community Right-To-Know Act |
| EO | Executive Order |
| ERD | Environmental Resource Document |

| | |
|---|---|
| ESPC | Energy Savings Performance Contract |
| FAR | Federal Acquisition Regulation |
| FEC | Facility Environmental Coordinator |
| FEMP | Federal Energy Management Program |
| FOG | Fats, Oils, and Grease |
| FONSI | Finding of No Significant Impact |
| FSH | Facility Safety Head |
| GIS | Geographic Information System |
| HAZWOPER | Hazardous Waste Operations Emergency Response |
| HM/HW | Hazardous Material and Hazardous Waste |
| HPO | Historic Preservation Officer |
| HRSD | Hampton Roads Sanitation District |
| HW | Hazardous Waste |
| ISCP | Integrated Spill Contingency Plan |
| LAFB | Langley Air Force Base |
| LAPD | Langley Policy Directive |
| LaRC | Langley Research Center |
| LED | Light Emitting Diode |
| LEED | Leadership in Energy and Environmental Design |
| LEPC | Local Emergency Planning Committee |
| LF | Langley Form |
| LMO | Logistics Management Office |
| LMS | Langley Management System |
| LPR | Langley Procedural Requirement |
| M&V | Measurement & Verification |
| MBTA | Migratory Bird Treaty Act |
| MOA | Memorandum of Agreement |
| MS4 | Small Municipal Separate Storm Sewer Systems |
| NASA | National Aeronautics and Space Administration |
| NECPA | National Energy Conservation Policy Act |
| NEPA | National Environmental Policy Act |
| NETS | NASA Environmental Tracking System |
| NF | NASA Form |
| NHPA | National Historic Preservation Act |
| NOx | Nitrogen Oxides |
| NPD | NASA Policy Directive |
| NPR | NASA Procedural Requirement |
| NSN | National Stock Number |
| O&M | Operations and Maintenance |
| OGC | Office of General Counsel |
| OSHA | Occupational Safety and Health Administration |
| P2 | Pollution Prevention |
| PA | Programmatic Agreement |
| PCB | Polychlorinated Biphenyl |
| PPBE | Planning, Programming, Budgeting, and Execution |

| | |
|---|---|
| ppm | Parts per million |
| PR | Purchase Requisition |
| RCRA | Resource Conservation and Recovery Act |
| REC | Record of Environmental Consideration |
| SAA | Satellite Accumulation Area |
| SDS | Safety Data Sheet |
| SERC | State Emergency Response Commission |
| SFAB | Safety and Facility Assurance Branch |
| SHPO | State Historic Preservation Officer |
| SPCC | Spill Prevention, Control and Countermeasures |
| SSEB | Source Selection Evaluation Board |
| SWPPP | Stormwater Pollution Prevention Plan |
| TMDL | Total Maximum Daily Load |
| TRI | Toxics Release Inventory |
| TSCA | Toxic Substances Control Act |
| UESC | Utility Energy Savings Contract |
| UFGS | Unified Facilities Guide Specifications |
| USACE | United States Army Corp of Engineers |
| USDA | United States Department of Agriculture |
| UST | Underground Storage Tank |
| VDHR | Virginia Department of Historic Resources |
| | |
| VWP | Virginia Water Protection |
| WDTS | Waste Disposal Tracking System |
| WLA | Waste Load Allocation |
| WMP | Waste Management Plan |