



LPR 8800.1

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Langley Research Center

ENVIRONMENTAL PROGRAM MANUAL



National Aeronautics and Space Administration

Chapter 1**1. INTRODUCTION****1.1 ENVIRONMENTAL PROGRAM GOALS AND OBJECTIVES**

LaRC is committed to conducting all operations in a safe, healthful and environmentally acceptable manner.

The LaRC goal is to plan and execute all actions and programs to minimize adverse effects on the quality of the environment without impairing the Center's mission. To achieve this goal, LaRC will:

- Develop and implement pollution prevention programs. Adopt source reduction and recycling practices to the extent technically possible and economically practicable.
- Manage the discharge of pollutants produced by LaRC activities in compliance with applicable regulations.
- Conserve and use natural and material resources wisely.
- Maintain, restore, and enhance the visual attractiveness and productivity of the natural and man-made environment.
- Communicate on its own behalf about its operations through open and responsive public information.
- Demonstrate initiative and leadership in forming and executing all programs that contribute to the nation's goal of preserving and enhancing the environment.

1.2 RESOURCE ALLOCATION

Necessary resources will be dedicated to sufficiently protect the environment. Local resources will be used when appropriate; however, in situations of non-compliance where funding and resources are required beyond those available locally, action will be initiated through the EMO to obtain funding support from NASA Headquarters.

1.3 ACCOUNTABILITY

When federal sovereignty is waived, as is the case with regard to the applicability of many environmental laws to Federal facilities, individuals may be indicted for failing to comply with a lawful standard. Many factors, too numerous and complex to discuss in this manual, contribute to one's personal risk of incurring criminal or civil penalties for knowingly violating environmental laws.

Citations and fines for violations of environmental laws and regulations are dependent upon the applicable law and the nature of the violation. Charges can range anywhere from civil charges for non-compliance to criminal charges for willful violation and/or

withheld or falsified information. Penalties can range from an injunction to fines of up to \$50,000 per day and 3 years in prison depending on the nature of the violation.

1.4 RESPONSIBILITY

Conducting operations in an environmentally acceptable manner is each employee's responsibility. Achieving LaRC's goals and objectives requires support and cooperation from all employees.

LAPD 8800.1 specifies management and organization general responsibilities for the Environmental Program. Each chapter of this handbook details specific responsibilities for carrying out that effort.

1.9 RECORDS

Langley Form 44, "Hazardous Materials"

Langley Form 163, "Waste Material Data Sheet"

Langley Form 461, "NEPA Environmental Checklist"

Chapter 2

2. NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

2.1 GENERAL

This Chapter establishes procedures at LaRC to identify and assess the environmental impact of proposed programs or projects. It also provides guidelines to ensure that environmental impact analysis is part of new projects during the conceptual study phase. The procedures are applicable to all LaRC employees and contractors who in any way participate in the development of projects, and the management of operations that may have an impact on the environment.

Environmental impact analysis must be a part of the earliest thinking on any proposed action or project. It requires continued evaluation and update as the proposed action develops. Environmental analyses, environmental assessments (EA), and where necessary, environmental impact statements (EIS) are used throughout the decision-making process of new or changed actions.

2.2 REQUIREMENTS

The National Environmental Policy Act of 1969 (NEPA), as amended (42 United States Code (U.S.C.) 4321 et seq.) establishes national policy concerning the protection and the enhancement of the environment. It requires Federal agencies to prepare detailed documentation on any action undertaken that could result in a significant impact on the environment. NASA NPR 8580.1, "Implementing the Provisions of the National Environmental Policy Act and Executive Order 12114," formalizes NASA policy in this area.

2.3 ENVIRONMENTAL DOCUMENTATION

LaRC personnel or offices initiating actions covered by NEPA must prepare environmental analyses, assessments and impact statements in accordance with the requirements of this Chapter, NPR 8580.1, and other relevant Federal environmental laws, regulations, and Executive Orders. Preparation of these documents must be coordinated with the EMO early in the process.

2.3.1 Major Decision Points

Environmental documentation shall be linked to major decision points as follows:

A. Completion of an environmental assessment and the determination as to whether an EIS is required must be made **prior** to the decision to proceed from the conceptual study phase to a detailed planning/definition phase of the proposed action. This determination must be concurrent with:

1. Proposal of a research and development (R&D) project for detailed planning and project definition;
2. Proposal of a major construction of facilities (CoF) project for detailed planning and project definition;
3. Proposal of an institutional action (other than a facility project) for detailed planning and definition; and
4. Proposal of a plan to define changes in an approved project.

B. If required, the final EIS shall be completed and distributed **prior** to the decision to proceed from the detailed planning/definition phase to the development/construction (or implementation) phase of the proposed action. For example, the EIS shall be completed by and incorporated with:

1. Proposal of an R&D project for development/construction;
2. Proposal of a major CoF project for development/ construction;
3. Proposal to undertake a significant institutional action (or other facility project); and
4. Proposal to implement a program change.

2.3.2 Review and Documentation

Figure 2-1 provides a general overview of the environmental (NEPA) review and documentation process at LaRC. The first step of the process is to review the action or project using the Environmental Analysis Checklist provided in NASA Langley Form 461, "NEPA Environmental Checklist." The checklist is designed to assist the initiator in determining if the action has the potential to produce any type of environmental effect or impact.

The checklist provides a series of "YES-NO" type questions spanning all possible areas of activities that might result in an environmental impact. If, after having completed the checklist, all of the questions are answered "NO", the action is considered to have no potential to produce an environmental impact and is excluded from further environmental review. However, the initiator must document his/her review via a Record of Environmental Consideration (REC). An example of a REC is shown in Figure 2-2. After completing the REC and obtaining concurrence from the Head, EMO, the initiator must place it in the project files with the completed checklist. No further documentation is required. The REC must be addressed at the Preliminary Design Review and in the Preliminary Engineering Report, if one is prepared.

If, however, one or more of the questions on the checklist are answered with a "YES", the project initiator must prepare a detailed environmental analysis. The EMO may be contacted at extension 43500 for assistance in preparing the analysis. The initiator must gather information to determine the nature and extent of the impact(s). For example, if the question concerns the discharge of substances into the environment, the initiator must determine: the type of discharge, its volume, the duration and point of discharge, and any other pertinent information.

This information is used to determine whether or not the action will, or has the potential to, produce environmental impacts. If a review of the information in the environmental analysis shows that there will be no environmental impact, the review is complete. The initiator must then complete and sign a REC, Figure 2-2, and obtain the concurrence of the EMO. The REC must then be placed in the project file with the data and documentation compiled during the analysis and the completed checklist. This REC must also be addressed at the Preliminary Design Review and in the Preliminary Engineering Report, if one is prepared.

If the detailed environmental analysis shows that the action might have a significant impact on the environment, the project initiator must prepare an environmental assessment. In some cases during completion of the environmental checklist, it will become apparent that the action will produce a significant environmental impact. In these cases the detailed environmental analysis step may be skipped. The initiator should proceed to the EIS. This is particularly true for actions that deal with wetlands, floodplains, or cultural resources.

2.3.3 Environmental Assessment (EA)

Table 2-1 lists specific NASA actions that require an environmental assessment. For these actions, project initiators should proceed directly to the environmental assessment. The environmental assessment form and its contents must comply with the format and content required by NPR 8580.1. In addition to these actions, under the Council of Environmental Quality (CEQ) regulations, any action that is not specifically considered to require an EIS or which is not specifically a categorical exclusion, must be treated as environmental assessment-type activity. Table 2-3 lists the activities that are categorically excluded from the requirements for an EA.

If the environmental analysis indicates that the proposed action will have an impact (either adverse or beneficial) on the environment, an environmental assessment is required. The environmental assessment will evaluate the possible environmental impact in terms of its short and long-term significance. The complexity of an assessment will vary according to the subject matter and the significance of the impact.

The environmental assessment and the determination as to whether an EIS is required must be made **prior** to the decision to proceed from the conceptual study phase to the detailed planning/definition phase of the proposed action.

Once the environmental assessment is signed by the Head, EMO, and Center Director, it is then sent to NASA Headquarters for review and concurrence. **Early involvement by the EMO in preparation of the environmental assessment is imperative.**

If it has been determined that an EIS is not required, the EMO will prepare a "Finding of No Significant Impact" (FONSI) and send it to NASA Headquarters for review and approval. The FONSI will summarize the assessment and include reasons why an EIS is not required.

2.3.4 Environmental Impact Statement (EIS)

NASA actions expected to have a significant effect on the quality of the environment shall require an EIS. Table 2-2 is a listing of NASA actions that require an EIS. An environmental assessment is not required for these actions. When it has been determined that an EIS is required, a "Notice of Intent to Prepare an EIS" is also required. The EMO staff will coordinate the preparation and processing of the EIS in accordance with the provisions of NASA NPR 8580.1, and the provisions of the CEQ Regulations for Implementing the Procedural Provisions of NEPA (40CFR Parts 1500-1508). Table 2-3 lists the activities that are categorically excluded from the requirements of an EIS.

NASA Headquarters must agree that an EIS is or is not required for any major project at LaRC. The EMO will establish external and internal processing for each EIS on a case-by-case basis.

The final EIS shall be completed and distributed in accordance with the CEQ regulations **prior** to the decision to proceed from the detailed planning-definition phase to the development-construction phase (or implementation) phase of the proposed project or action.

2.4 RESPONSIBILITIES

2.4.1 Facilities and Equipment Support Services (FESS)

The LaRC Contracting Officer's Technical Representative (COTR) shall ensure the contractor:

- Identifies projects that may affect the environment.

- Initiates environmental documentation as required by this Chapter.
- Coordinates activities related to environmental quality with the EMO.

2.4.2 Project Initiator

- Coordinate with the EMO early in the project development.
- Prepare, or fund the preparation of, the required NEPA documentation as described in this Chapter.
- Maintain project documentation as required in Paragraph 2.3.

2.4.3 Environmental Management Office

- Assist the project initiator as required.
- Serve as the point of contact for all required off-center coordination (NASA Headquarters, other Federal agencies, State, and local agencies).
- Process the EA or EIS in accordance with NPR 8580.1 to include the following actions:
 1. Coordinate internal review of the draft EIS and EA and plan for coordination with State, and local agencies or organizations.
 2. Submit the draft EIS to the EPA, through NASA Headquarters Environmental Management Division, Code JE.
 3. Coordinate review of the draft EA or EIS and final EA or EIS by other Federal, State, and local agencies, organizations, and interested parties, including preparation of responses to their comments.
 4. Prepare responses to comments on the final EIS and EA.
 5. Provide for public availability of the EIS and EA.
 6. Ensure that necessary actions are taken to meet the applicable requirements of environmental laws and regulations.

2.4.4 Personnel Initiating Projects

- Coordinate with the EMO in identifying programs and projects that may affect the environment and activities related to environmental quality.
- Prepare and maintain NEPA documentation as required in Paragraph 2.4.
- Coordinate activities related to environmental quality with the EMO.

Figure 2-1

Overview of the NEPA Process

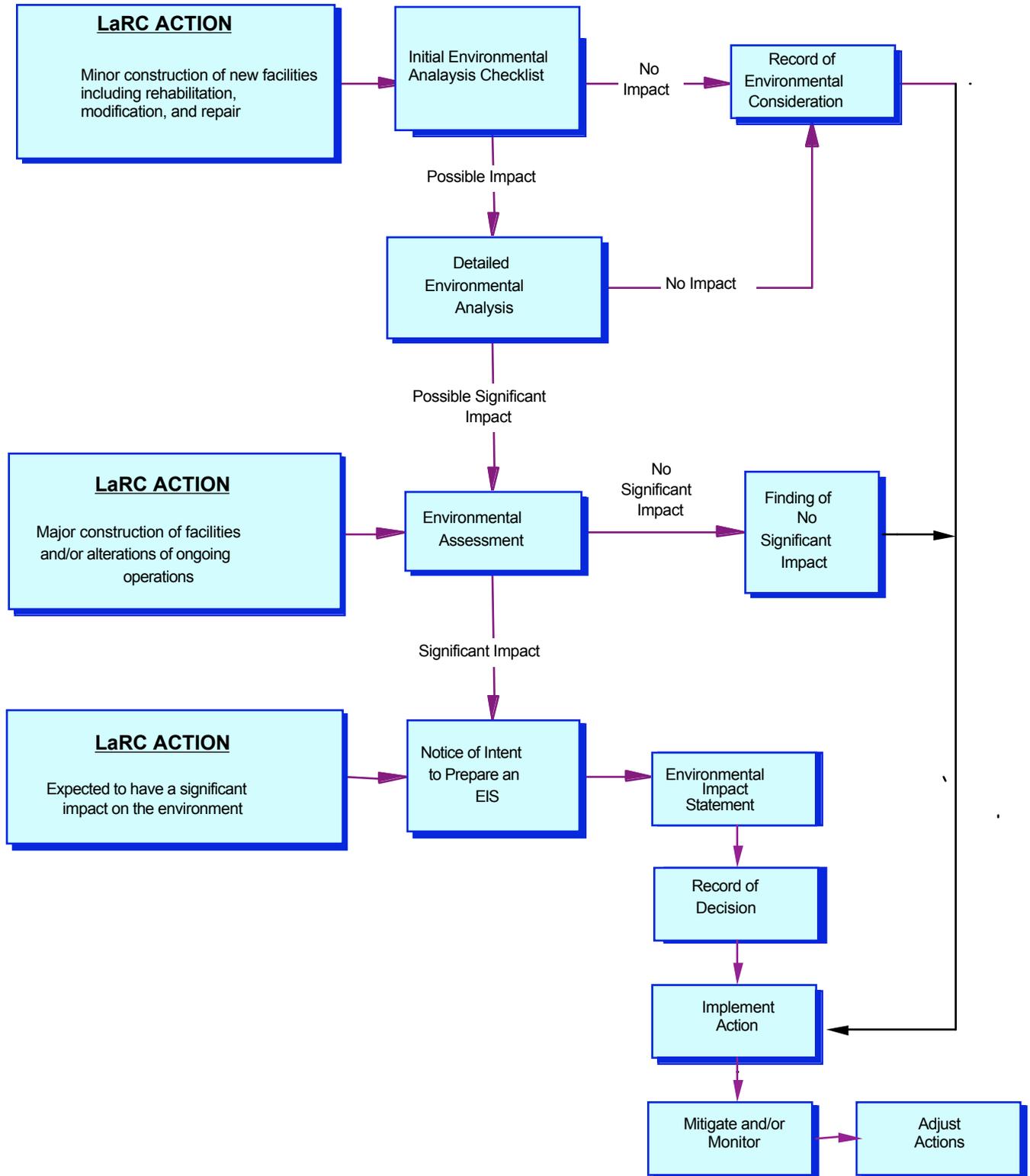


Figure 2-2

Record of Environmental Consideration (Example)

1. Project Title.
2. Description of proposed action.
3. Anticipated date and/or duration of proposed action.
4. It has been determined that the above action (choose one).
 - a. Is adequately covered in an existing EA _____ EIS _____
entitled _____ and
dated _____.
 - b. Qualifies for Categorical Exclusion # ____, (Table 2.3, LaRC Environmental Manual)
and has no special circumstances which would suggest a need for an
environmental assessment.
 - c. Is exempt from NEPA requirements under the provisions of
(site superseding law).
 - d. Has no environmental impact as indicated by the results of an Environmental
Analysis Checklist and/or a Detailed Environmental Analysis. (Attach Checklist or
Environmental Analysis as applicable).

SIGNED: _____ DATE: _____
(Office responsible for proposed action)

SIGNED: _____ DATE: _____
Head, Environmental Management Office, OSEM

*Table 2-1***LaRC Actions Requiring an Environmental Assessment****Specific LaRC actions which require an EA are:**

1. Specific spacecraft development and flight projects in space science.
2. Specific spacecraft development and flight projects in space and terrestrial applications.
3. Specific experimental projects in aeronautics and space technology and energy technology applications.
4. Development and operation of new space transportation systems and advanced development of new space transportation and spacecraft systems.
5. Reimbursable launches of NASA spacecraft or payloads.
6. Major Construction of Facilities projects.
7. Actions to alter ongoing operations at LaRC which could lead, either directly or indirectly, to natural or physical environmental effects.

*Table 2-2***LaRC Actions Requiring an Environmental Impact Statement****Specific LaRC actions which require an EIS are:**

1. Development and operation of new launch vehicles.
2. Development and operation of space vehicles likely to release substantial amounts of foreign materials into the earth's atmosphere or into space.
3. Development and operation of nuclear systems, including reactors and thermal devices used for propulsion and/or power generation. Excluded are devices with millicurie quantities or less radioactive materials used as instrument detectors and small radioisotope heaters used for local thermal control, provided they are properly contained and shielded.

Table 2-3

NASA EA/EIS Categorical Exclusions

The following activities are categorically excluded from the requirements for EA's and EIS's:

1. Research and Development (R&D) activities in space science (for example, physics and astronomy research and analysis, planetary exploration mission operations and data analysis) other than specific spacecraft development and flight projects.
2. R&D activities in space and terrestrial applications (for example, resource observations applied research and data analysis, technology utilization) other than specific spacecraft development and flight projects.
3. R&D activities in aeronautics and space technology and energy technology applications (for example, research and technology base, systems technology programs) other than experimental projects.
4. R&D activities in space transportation systems engineering and scientific and technical support operations, routine transportation operations, and advanced studies.
5. R&D activities in space tracking and data systems.
6. Facility planning and design (funding).
7. Minor construction of new facilities including rehabilitation, modification, and repair.
8. Continuing operations of a NASA installation at a level of effort, or altered operations, provided the alterations induce only social and/or economic effects, but no natural or physical environmental effects.

NOTE: Even though an action may be categorically excluded from the need for a formal environmental assessment or EIS, **it is not excluded from the requirement for an environmental analysis conducted during the earliest planning phases.** If that analysis shows that the action deviates from the criteria for exclusion and it is concluded that there may be significant environmental effects, an environmental assessment must be completed. Based on that assessment, a determination must then be made whether or not to prepare an EIS.

For more detailed flowcharts of NEPA guidance, refer to NPR 8580.1.

Chapter 3

3. WATER QUALITY

3.1 GENERAL

The Clean Water Act (CWA) regulates discharge of pollutants into waters of the U.S. from any point source including industrial facilities and sewage treatment plants. It also regulates storm water runoff from certain industrial sources and requires reporting and cleanup of oil and hazardous substance spills in waterways. The objective of the CWA is to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters". Section 313 (a) of the CWA requires Federal agencies to establish pollution controls. Under the CWA it is illegal for any person, including Federal agencies, to discharge pollutants from a point source without a permit. The Environmental Protection Agency has granted the Commonwealth of Virginia Water Control Board authority to issue these permits under the Virginia Pollutant Discharge Elimination System (VPDES).

3.2 REQUIREMENTS

LaRC operates under two water discharge permits, one from the State (VPDES) and one issued by the Hampton Roads Sanitation District (HRSD). Any discharge not allowed under these permits is a violation of the CWA.

3.2.1 VPDES State Permit

VPDES Permit No. 0024741 allows LaRC to discharge effluent to surface waters and specifies the allowable discharges, the pollutant limitations, and the monitoring requirements. Information regarding monitoring locations and VPDES authorized discharges can be obtained by calling the Environmental Management Office at extension 43500.

3.2.2 HRSD Permit

HRSD Permit 0085 allows LaRC to discharge nonhazardous industrial wastewater and sanitary sewage to the HRSD sanitary sewer system. HRSD does not provide treatment for hazardous wastes. The HRSD Permit specifies the allowable discharges, the pollutant limitations, and monitoring requirements.

3.2.3 Storm Water Permit

The VDEQ requires that LaRC's storm water discharge be included as part of the Center's VPDES State Permit. Four Outfalls are permitted for storm water discharge only and no sampling is required at these sites.

3.3 RESPONSIBILITIES

3.3.1 Facility Environmental Coordinators (FEC's)

- Have knowledge of materials used in their areas of responsibility and operations that may result in potential release of water pollutants.
- Contact the EMO at extension 43320 to determine alternative disposal options in situations where surface water or sanitary discharge is not permissible.

- Schedule periodic training to assure facility personnel are aware of the Center's water quality requirements and allowable discharges.

In the event of a permit violation, FEC's shall participate in the investigation to determine the cause of the discharge and recommend remedial action to prevent reoccurrence.

3.3.2 Environmental Management Office (EMO)

- Monitor and report as required by the permits and maintain all related files.
- Serve as the point of contact for LaRC with regulatory agencies. In the event of a permit violation, the EMO shall coordinate the investigation and submit findings to the permitting agency, as necessary.
- Approve or disapprove discharges from on-site contractor operations.

3.3.3 Supervisory Personnel

- Assure that employees under their supervision are aware of permit requirements and act to prevent unpermitted discharges.

3.3.4 Individual Employees

- Assure that materials they are responsible for are disposed of properly and in accordance with permit requirements.

3.3.5 On-Site Contractors

Contracting Officer Technical Representatives (COTR's) shall ensure that any contractors working under them obtain approval from the EMO before the start of any operations that have discharges of any type to the environment.

Chapter 4

4. AIR QUALITY

4.1 GENERAL

Federal and state laws regulate air pollution emissions from NASA Langley Research Center facilities and operations. The Clean Air Act of 1970 and its Amendments of 1990 set 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." The U.S. Environmental Protection Agency has granted the Commonwealth of Virginia Department of Environmental Quality (VDEQ) authority for oversight and enforcement of Clean Air Act provisions.

4.2 REQUIREMENTS

4.2.1 NASA Langley Research Center Air Operating Permit

The Center has a federally enforceable state operating permit for its stationary sources of air pollution. The permit limits emissions from specific sources of air pollutants as well as Centerwide air pollutant emissions. It also specifies operating, monitoring, and record-keeping requirements. A list of facilities regulated under the air permit is available from the EMO.

4.2.2 Compliance Requirements of the Air Operating Permit

The air permit is designed to limit the amount of air pollution that NASA LaRC facilities and operations may emit. Specific permit requirements vary according to the air pollution source, but they generally fall into four categories:

Physical:

- Controls to limit emissions such as low NO_x burners on boilers and filters on paint booths.
- Monitoring equipment to measure emissions or process rates.

Operational:

- Limits on the amount of fuel burned or materials processed.
- Limits on frequency and duration of operations.
- Limits on the types and amounts of product that can be used, such as paints and solvents.

Record Keeping:

- Document that physical and operational requirements are met.
- Quantity of products, fuel, and materials used.
- Log the frequency and duration of operations.

Reporting and Inspections:

- Monthly and Quarterly Reports.

- Annual Inventory and Emissions Statement.
- Annual Inspections by VDEQ.

4.3 RESPONSIBILITIES

4.3.1 Environmental Management Office (EMO)

- Monitor and report all air emissions and prepare all permit applications as required by regulatory agencies.
- Serve as the point of contact for LaRC for regulatory agencies.
- Obtain emission inventories and prepare summary reports.

4.3.2 Facility Environmental Coordinators (FEC's)

- Know the facilities and operations in their areas of responsibility that are, or have the potential to be, sources of air pollution.
- Be familiar with the permitted sources of air pollution and the permit requirements for those sources.
- Notify the EMO prior to moving, changing or installing a potential air source at his/her facility.
- Consult with the EMO to evaluate operations of concern and to ensure compliance with air pollution regulations and permit requirements.
- Provide the EMO with information related to permit conditions. FEC's shall also provide data as required by the permit to the EMO in a timely manner for air emissions monitoring and inventory.

Whenever possible, sources of air pollution shall be minimized or eliminated through use of feasible engineering and administrative controls. Substitution of nonpolluting materials shall be considered.

4.3.3 Supervisory Personnel and Individual Employees

- Ensure that employees under their direction are aware of the air permit requirements and emissions limits.
- Assist FEC's with the preparation of the required information for permit conditions, monthly monitoring, and annual updates.
- All employees are responsible for ensuring that unpermitted emissions do not occur.

4.3.4 Office of Logistics Management (OLM)

- Provide the EMO with monthly reports on the amount and type of chemicals and the quantity of fuel issued from stock. Reports for the previous month will be provided to the EMO in a timely manner, but not later than five working days into the new month.

Chapter 5

5. HAZARDOUS WASTE MANAGEMENT & MINIMIZATION

5.1 GENERAL

This Chapter provides information and procedures to LaRC personnel and on-site contractors regarding the proper management of hazardous waste (HW) at the Center. The procedures comply with the many rules and regulations that have been established by the Environmental Protection Agency (EPA), the Occupational Safety and Health Administration (OSHA), the LaRC Environmental Management Office (EMO), and the Virginia Department of Environmental Quality (DEQ). The goal of the HW regulations and the environmental regulators is to ensure the health and safety of humans and the environment.

5.2 REQUIREMENTS

The Center is subject to HW regulations since LaRC facilities and personnel can each be considered an actual or potential generator of HW. LaRC is not authorized to transport HW off site, store HW beyond a 90-day accumulation period, or dispose of HW on site. These functions can only be performed by appropriately permitted contractors.

Hazardous waste is any material that is abandoned, discarded, recycled or inherently waste-like and has:

- Characteristics of hazardous waste listed by the EPA (List of Hazardous Materials identified in 40 CFR 261, Subpart D).
- Any characteristics of ignitability, corrosivity, reactivity, or toxicity defined by the EPA in 40 CFR 261, Subpart C.
- A potential of causing damage to health or the environment if disposed of improperly or if a spill occurs.

All LaRC personnel and on-site contractors who handle or oversee the handling of HW are required to follow the procedures outlined in this Chapter to ensure that LaRC complies with all applicable HW management regulations.

5.3 SATELLITE ACCUMULATION AREA MANAGEMENT

- Definition - A Satellite Accumulation Area (SAA) is a specific location at a facility that is designated to accumulate HW (yellow label).
- Custodian / Generator - Any person who oversees or manages a SAA, or who generates and accumulates HW at a SAA.
- Location - SAA's must be located at or near the point of waste generation and be under the control of the operator of the process generating the waste. HW from one SAA may not be moved to another SAA.

- Quantity – No more than 55 gallons TOTAL of HW or one quart of acute HW can be accumulated at a SAA. Full containers, regardless of size, must be disposed of within 3 days.

Acute wastes are specifically listed by the EPA. A copy of the list is available by calling the EMO at extension 44232.

- Labeling - Each HW container located at a SAA must be marked with the words “Hazardous Waste” (yellow label) and the identity of the waste.

NOTE: The Accumulation Start Date on the HW label does not get filled in until the container is FULL or the 55-gallon limit of HW is reached.

- Container Management - Each container at a SAA must be closed at all times (unless adding waste), non-leaking, and compatible with the waste. Leave headroom to allow for expansion (3 inches for 55-gallon drum, 1-inch for 5 gallon).
- Inspection – SAA inspections must be performed weekly and documented. An example inspection sheet is available at: <http://osemant1.larc.nasa.gov/cmts/hazwaste/>
- Spill Response – A one-page Spill Plan must be posted at each SAA and, where appropriate, there must be adequate spill supplies to clean up small spills or contain large spills (Facilities must purchase their own supplies). A facility-specific Spill Plan can be generated at: <http://osemant1.larc.nasa.gov/cmts/hazwaste/>.
- Disposal – A HW container must be removed from a SAA in 3 days when the 55-gallon limit is reached or the container is full. The Accumulation Start Date starts the 3-day clock. (See Section 5.5 for disposal guidelines).

5.3.1 Training

All personnel who handle HW or who oversee the accumulation of HW in their facility must have training on HW management procedures that are relevant to the position in which they are employed or tasks they are performing. The training must also include emergency response procedures and familiarization with equipment and systems where applicable.

NOTE: Training must be updated at least annually and whenever new or different hazards are introduced into the workplace. Proof of training (e.g., sign in sheet) must be kept on file by the FEC.

5.4 RESPONSIBILITIES

5.4.1 Facility Personnel and On-Site Contractors

- Follow the management and disposal procedures outlined in this chapter.
- Receive HW management training at least annually if you handle or oversee the handling of HW.

- Follow the Spill Plan procedures in the event of a small spill/ leak of HW. In the event of a large spill, immediately notify the FEC. No action should be taken which would endanger personnel.
- Contact the EMO at least two weeks before starting work on large waste-generating projects (e.g. lead paint removal, wash-down of tunnel walls). Failure to do so could result in work stoppage or additional costs.

5.4.2 Facility Environmental Coordinators (FEC's)

- Notify the EMO at extension 44232 prior to establishing or modifying a SAA in his/her facility.
- Implement SAA management procedures according to Section 5.3 and ensure that the Spill Plan is posted and weekly inspections are performed and maintained. Suggested inspection sheets and spill plans are available at: <http://osemant1.larc.nasa.gov/cmts/hazwaste/>.
- Ensure that his/her facility personnel follow the waste management and disposal procedures outlined in this chapter.
- Review and sign only complete Waste Material Data Sheets (WMDS) disposal forms.
- Ensure all personnel who handle or oversee the handling of HW obtain annual training and maintain training files.
- Update his/her facility chemical inventory using the CMTS according to the specifications in Chapter 19, Hazardous Materials Inventories.
- Perform other duties as specified in LAPD 8800.1, "LaRC Environmental Compliance, Restoration, and Pollution Prevention Program."

5.4.3 The Environmental Management Office (EMO)

- Oversee the Center's hazardous waste management operations.
- Review Transfer, Storage and Disposal Facility audit information.
- Prepare the HW Minimization and HW Generator Reports.
- Issue labeled waste accumulation containers and remove full hazardous waste containers within 72-hours of notification by the generator.
- Dispose of waste through a qualified off-site contractor in accordance with all Federal, State and local requirements.
- Provide periodic HW Management training to FEC's and facility personnel.
- Perform multimedia environmental audits of Center facilities to evaluate waste generation practices.

5.5 WASTE MANAGEMENT AND DISPOSAL PROCEDURES

The following procedures must be followed by any generator of waste at LaRC including all personnel, facilities, and on-site contractors.

5.5.1 Waste Accumulation Containers

- Pre-labeled drums/containers with an identification number are issued by the EMO. The drums must stay at that facility and contain only the waste for which they were issued. *Liquid and solid wastes should not be mixed.*
- Facilities may use their own small containers (less than a 5 gallon pail) to accumulate small quantities of waste. The containers must be compatible with the waste, properly labeled, and contain only the waste identified on the label.

NOTE: REUSE OF PRODUCT DRUMS IS PROHIBITED. Call 5-DRUM to turn in empty product drums and request a properly labeled accumulation drum.

5.5.2 Disposal Procedures

The Generator or Custodian of the waste is responsible for proper disposal.

- Labels – Fill in the Accumulation Start Date when the HW container is FULL (this starts the 3-day clock to have the container removed from the SAA). (Anticipate the container fill date and complete forms ahead of time to ensure compliance).
- Forms – Complete all information in Part 1 of LF163, “Waste Material Data Sheet.” Currently, these forms are only available through the EMO. FEC signature and organization code is mandatory and a MSDS should also be attached. USE ONE FORM per type of waste (various sizes of the same waste type can go on one form).
- Approval – Send WMDS forms to “Hazwaste” at MS 477 or hand deliver to B1183, room 111. Incomplete forms will be returned to the generator.

5.6 TYPICAL WASTES AND EXCEPTIONS

5.6.1 Typical Wastes

Follow the procedures outlined in Section 5.5 for proper management and disposal of the following types of wastes:

Acids / caustics	Any paints	Oil / lubricants
Adhesives	Light ballasts	Oily rags and water
Antifreeze	Mercury switches	Cylinders
Photographic fluids	Fuels	Small capacitors
Spill debris	Solvents	Used paint cans

NOTE: Trash disposal of such items is prohibited.

5.6.2 Universal Waste

Recent changes have been made to regulations regarding the management of *batteries* and *fluorescent light bulbs*. The changes are:

- They can now be labeled with a “Universal Waste” label (purple label).
- The start date is filled in when the waste *begins to be accumulated* (as opposed to the HW requirements of when the container is full).
- They can be accumulated for up to one year, at which point they must be shipped off site for disposal. In order for LaRC to meet this requirement, generators must have their batteries or bulbs picked up within 270 days of the start date to allow the Environmental Office sufficient time to ship them off site for disposal.

Aside from these changes, all other SAA management requirements still apply for Universal Wastes (e.g. annual training, drums closed and labeled).

5.6.3 Exceptions

Forms are NOT required to dispose of small batteries, lightbulbs and aerosol cans. See below for disposal procedures. Call extension 5-DRUM for pickup or use electronic request at: <http://osemant1.larc.nasa.gov/envcord/ref/Hazwaste/bflac2.htm>

- Batteries

Most batteries contain corrosive or caustic materials, and/or toxic metals, such as mercury, cadmium, and lithium. Any type of small battery (e.g., alkaline, lithium, ni-cd) must be accumulated in separate non-metallic containers labeled with a “Universal Waste” (purple) label. Refer to Section 5.6.2, Universal Waste for labeling and accumulation procedures. Disposal forms are not required to turn in batteries for disposal. Generators may request pickup electronically at: <http://osemant1.larc.nasa.gov/cmts/hazwaste/>.

NOTE: All terminals must be taped to prevent fire/sparks. (Forms must be submitted for large lead-acid and unusual batteries).

- Fluorescent Light Bulbs (FLB's)

Most FLB's are subject to regulation because they contain a small amount of mercury. All FLB's at LaRC must be accumulated and properly disposed of. In most cases, the LaRC lighting contractor will replace FLB's at Center facilities.

NOTE: Facilities that change their own bulbs must accumulate them in their original box (to prevent breakage) and label “Universal Waste.” Refer to Section 5.6.2, Universal Waste for proper labeling and accumulation procedures. Disposal forms are not required to turn in bulbs for disposal. Generators may request pickup electronically at: <http://osemant1.larc.nasa.gov/cmts/hazwaste/>.

- Aerosol or Paint Spray Cans

Full or partially full aerosol cans are considered hazardous waste and must be placed in a labeled (yellow HW label) accumulation container and managed in accordance with Section 5.5. Disposal forms are not required to turn in aerosol cans for disposal. Generators may request pickup electronically at: <http://osemant1.larc.nasa.gov/cmts/hazwaste/>.

The State of Virginia allows for *completely empty* aerosol cans to be accumulated as nonhazardous waste which is exempt from SAA management requirements. Facilities must receive approval from the EMO at extension 44232 prior to accumulating their aerosols as nonhazardous.

NOTE: placing a full or partially full aerosol can into a nonhazardous accumulation container could result in a notice of violation and/or fine.

5.7 RESOURCES / ELECTRONIC TEMPLATES

- **Waste Pickup and SAA guidance**:: request pickup of batteries, lightbulbs and aerosol cans, generate SAA Spill Plans and inspection sheets at: <http://osemant1.larc.nasa.gov/cmts/hazwaste/>
- **Chemical Material Tracking System** - FEC's can update their chemical inventories at: <http://osemant1.larc.nasa.gov/cmts/>

5.8 HAZARDOUS WASTE MINIMIZATION

Waste minimization is required by the EPA. LaRC's policy is to minimize the volume and toxicity of wastes generated at the Center. Source reduction, reuse, and recycling shall be utilized whenever possible. Additional information on waste minimization concepts can be found in Chapter 18, Pollution Prevention.

5.8.1 Responsibilities

5.8.1.1 Facility Personnel and On-Site Contractors

- Purchase only what is expected to be used when ordering hazardous materials and determine if a less hazardous material can be used.
- Review operations to assure that they are conducted efficiently, reducing hazardous material use whenever possible.
- Utilize the Center's Reuse Facility (call extension 48058) whenever possible.
- Follow proper waste segregation practices.

5.8.1.2 Facility Environmental Coordinators (FEC's)

- Assist facility personnel in minimizing hazardous waste.

5.8.1.3 The Environmental Management Office (EMO)

- Send a HW Minimization Report by April 31st of each year to the respective Organizational Unit Managers (OUM's). (The report provides a detailed list of all waste streams that have been disposed of by the Organization during the past calendar year. The report may also include recommendations from the EMO.)

5.8.1.4 LaRC Offices and Organizational Units

- Review the HW Minimization Report and implement, where feasible, minimization procedures that will reduce their hazardous waste.
- Submit a response to the EMO by June 31st if recommendations from the EMO are included in the report.
- Request assistance from the EMO to initiate minimization plans and procedures at their facilities.

Chapter 6

6. POLYCHORINATED BIPHENYL (PCB) MANAGMENT

6.1 GENERAL

This chapter provides information regarding Polychlorinated Biphenyls (PCB's) and PCB containing equipment. It also outlines LaRC procedures for proper identification, management, and disposal of PCB and non-PCB items.

PCB's are a class of chlorinated hydrocarbons that were developed in 1929 and used in a variety of applications because of their chemical stability, low flammability, and low electrical conductivity. Use as a coolant in transformers, capacitors, and ballasts has been a major application. PCB fluids have been sold under various trade names, such as "Askeral," "Inerteen", "Chlorexol," "Noflama," and "Pyranol." Because of their extreme stability, they do not break down in the environment and tend to biomagnify through the food chain. Manufacturing of PCB's in the United States was discontinued in 1977.

6.2 REQUIREMENTS

PCB's are regulated under the EPA's Toxic Substance Control Act (TSCA). The regulations include procedures for proper labeling, storage, use, servicing, decontamination, and disposal of all fluids containing greater than 50 parts per million (ppm) PCB's; electrical equipment containing such fluids; and cleanup debris from spillage or leakage of such fluids. Items containing fluids that are less than 50 ppm PCB are considered non-PCB and are excluded from federal regulations with the exception of disposal practices.

Some facilities at the Center may still have PCB light ballasts or capacitors that have high levels of PCB's, or older electrical equipment that have very low levels of PCB's. Access to areas containing large high voltage PCB capacitors (2,000 volts or greater) must be posted with a large sign. All PCB storage areas must also be posted. A list of items that require labeling can be obtained by calling the EMO at extension 43500.

6.3 RESPONSIBILITIES

All LaRC and contractor personnel involved in the maintenance, use, and disposal of PCB items must follow the procedures in this section to assure compliance.

6.3.1 Custodian / Operator

Facilities System personnel shall serve as custodian or operator and perform the duties listed below. In the event that PCB items at a facility are not operated and maintained by Facilities System personnel, the Facility Environmental Coordinator (FEC) shall perform these duties:

- Label and post signs on each PCB item and area located at their facility. A list of items that require labeling can be obtained by calling the EMO at extension 43500.
- Periodically inspect transformers and large capacitors for leaks and proper storage.

- Contact the EMO for the following:
- Sampling of possible PCB items located at their facility. Call extension 43394.
- Procedures for removing any PCB items for disposal. Call extension 44232.
- In the event of a PCB spill call the EMO PCB Spill Coordinator at extension 43320.

6.3.2 The Environmental Management Office (EMO)

- Provide PCB labels and signs to LaRC operators and custodians.
- In the event of a spill, serve as PCB Spill Coordinator and follow the procedures outlined in the LaRC PCB Management and SPCC Plan.
- Review/approve disposal requests and sign PCB shipping documents.
- Approve or reject the use of PCB disposal facilities.

6.3.3 Environmental Support Contractor

- Manage the Center's PCB Storage Facility, Facility 1167 in accordance with LaRC waste management and TSCA requirements.
- Inspect all PCB items to ensure proper labeling and packaging prior to being placed in storage in Facility 1167.
- Perform sampling and analyses of PCB items as needed.
- Prepare manifests in accordance with 40 CFR 761.209, submit to the EMO at least three days prior to PCB shipment, and maintain disposal files.
- In the event of a spill, follow the procedures outlined in the LaRC PCB Management and Spill Prevention, Control and Countermeasure Plan.

6.3.4 PCB Removal Operations

- Notify the EMO prior to work involving the removal of PCB items.
- Conduct all PCB operations in accordance with applicable provisions of CFR 40 Part 761, Subparts A through K.
- Temporarily store PCB items (transformers, capacitors, etc.), for a period of time, not to exceed 30 days, from the date of removal from service. Storage shall be in accordance with EPA regulations CFR 40 Part 761.65 and coordinated with the EMO to assure proper storage practices. A notation shall be attached to the PCB item or PCB container housing which indicates the date of removal from service, its weight, and PCB ppm content.
- Package all PCB items for transportation according to applicable DOT regulations.

NOTE: All PCB transformers and PCB contaminated electrical equipment that have fluids containing any concentration of PCB's must be drained before being transported off the Center for disposal. The only exception to this is transformers or capacitors that can be contained without modification in a drum or other leak proof container. The EMO must be notified prior to draining any equipment to ensure that proper accumulation containers are used.

- Market oil containing greater than 2 ppm PCB's to incinerators or burners defined in 40 CFR Part 761.20 (e) (1) or an EPA approved chemical treatment facility.
- At least five working days prior to transporting any PCB items off LaRC property, the following information must be submitted to the EMO:
 1. Name and location of the ultimate disposal facility. Only NASA LaRC approved facilities may be used for the disposal of PCB items. Disposal shall be in accordance with CFR 40 Part 761, Subpart D.
 2. A completed manifest that fulfills all requirements of CFR 40 Part 761.207 and CFR 40 Part 761.208. The EMO will review the manifest prior to approval and signature.

In the event of a spill:

1. Immediately notify the LaRC PCB Spill Coordinator at extension 43500. During non-working hours, notify the Duty Officer at extension 44927).
2. Perform cleanup as required under CFR 40 Part 761, Subpart G.

All personnel, including supervisors involved with spill prevention and cleanup, shall be trained in accordance with Federal/State regulations.

Materials required under the Emergency Spill Plan as provided by the removal personnel and approved by the EMO shall be maintained and kept on hand at the site during the entire PCB operation. No PCB site operations shall be performed unless these items and qualified personnel are present at the site.

Chapter 7

7. ENVIRONMENTAL PERMITS, AUDITS AND ALERTS

7.1 ENVIRONMENTAL PERMITS

7.1.1 Requirements

LaRC has the responsibility to ensure compliance with all Federal, State, and local permits and notices required for environmental pollution control and waste processing. LaRC must apply for permits in a timely manner and coordinate its efforts with all affected agencies. Examples include: permits for discharge to surface waters, discharge to sanitary sewers, landfill, dredge and fill operations, asbestos removal, underground storage tank modifications, new air emissions sources and activities in wetlands.

A permit is required for each specific source of discharge of effluents onto the land or into the air and water. Separate applications are submitted to the various State regulatory agencies, the U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency (EPA), or other persons or agencies appropriate for each permit.

The permits currently in effect that govern operations at LaRC are discussed in Chapters 3 and 4 of this manual.

7.1.2 Permit Checklist

The Permit Checklist, Figure 7-1, was developed to assist personnel initiating actions or projects at LaRC to determine if an environmental permit is required. Personnel initiating projects shall complete the checklist prior to project development. Any action marked “yes” must be coordinated with the EMO.

7.2 RESPONSIBILITIES

7.2.1 Environmental Management Office (EMO)

- Validate the need for permit applications, revisions, and renewals.
- Prepare and/or review all environmental permit applications.
- Determine the need for notices or other documentation to comply with Federal, State and local laws and regulations.
- When applicable, review construction permits, initial operating permits, process notices and other documentation to ensure adherence to pollution control and disposal regulations.
- Maintain copies of the environmental permits discussed in Chapters 3 and 4 and apply for renewal or modifications.

7.2.2 Facilities and Equipment Support Service (FESS)

- Provide input for all required permits and notices.
- Ensure necessary permits are obtained prior to construction of facilities.

- Complete Environmental Permit Checklist, Figure 7-1.
- Coordinate permit requirements with the EMO.

7.2.3 Personnel serving as the Heads of Research & Technology Competency Areas, Program Offices or Business Management Offices

- Ensure research operations are conducted in accordance with permitting requirements.

7.3 AUDITS and INSPECTIONS

LaRC undergoes a number of audits and inspections on a recurring basis. All on-site regulatory agency reviews shall be coordinated through the EMO at extension 43500. On-site visits may require interfacing with other Center organizations. The EMO will attempt to ensure that audits and inspections are coordinated with minimum impact on Center operations.

7.3.1 External Audits

The following table shows audits conducted at LaRC by regulatory agencies on a regular basis. Regulatory agencies can conduct interim audits anytime at their discretion.

Table 7-1
RECURRING AUDITS AT NASA LaRC

AGENCY	AUDIT FOCUS	FREQUENCY
Hampton Roads Sanitation District (HRSD)	Industrial	Semi-Annually
Virginia Dept. of Environmental Quality (VDEQ) Water Office	Water	Annually
VDEQ Waste Operations Office	Hazardous waste	Annually
VDEQ Air Office	Air emissions	Annually

7.3.2 Internal Assessments

The EMO will conduct, on a continuing basis, multi-media environmental assessments of LaRC facilities to ensure the facilities and their operations are in compliance with Federal, State and local regulations, as well as with the Center's environmental policies. Assessment results will be documented to include environmental violations and/or concerns and recommended methods of correction. The EMO will forward this document to the Facility Environmental Coordinator (FEC) for action, if necessary.

7.4 ENVIRONMENTAL ALERTS

There are occasions when information affecting environmental compliance matters at the Center must be communicated to all personnel. This information will be published in the form of an Environmental Alert (Example shown in Figure 7-2).

Electronic copies of all environmental alerts can be found at the EMO web site at:
<http://osemant1.larc.nasa.gov/alerts/>.

Figure 7-1
ENVIRONMENTAL PERMIT CHECKLIST

PROJECT NAME:

Does the proposed action include or involve:

YES* NO

___ ___ Discharge of any substances into the air;

- Construction and operation air permit

___ ___ Discharge of any substances into surface waters;

- Construction and operation water discharge permit for industrial wastes (or for domestic wastes for sewage treatment plants)

- Virginia Pollutant Discharge Elimination System permit if the discharge is into navigable waters

___ ___ Discharge of any substances into ground waters;

- Permit for discharge of industrial waste (or domestic waste)
- Ground water monitoring plan

___ ___ Construction/modification of a sewage treatment facility, including collection/transmission lines

- Sewage treatment/facility modification permit

___ ___ Any construction activities in wetlands or in existing outfalls;

- Construction or fill and dredge permit.

Other Requirements:

___ ___ Use of underground storage tank for any substance other than potable water;

- State Water Control Board notification
- Ground water monitoring plan/underground storage tank leak detection

*** Any item marked "yes" must be coordinated with EMO at extension 43500.**

Figure 7-2
ENVIRONMENTAL ALERT (PARTIAL)



ENVIRONMENTAL ALERT
Environmental Alert
LANGLEY RESEARCH CENTER

DATE: August 1, 2000 Not an official copy [[Get official copy here](#)]

TO: Distribution

FROM: 418/Head, Environmental Management Office, OSEM

SUBJECT: Use of Hazardous Material Purchase Approval Form, Electronic LF 44, for Acquisition of Potentially Hazardous Material

The use of an electronic Hazardous Material Purchase Approval Form, Langley Form 44, is required LMS-CP-4759 for acquisition of hazardous material. As stated in NPG 1710.12, Potentially Hazardous Materials, this requirement applies to "all potentially hazardous materials brought on-site including purchasing from commercial resources, through contractor resources, R & D Engineering samples and commercial product samples." Potentially hazardous materials include materials with flammable, reactive and health hazardous properties as defined by OSHA Regulation 29 CFR, Part 1910.

LaRC personnel should review acquisition practices to assure the electronic Form 44 is properly used. The form and complete instructions can be found at:

Chapter 8

8. ASBESTOS

8.1 GENERAL

This Chapter provides information and establishes procedures at LaRC for proper identification, management, and disposal of asbestos. The information is to be used in conjunction with the procedures contained in LPR 1740.2, "Facility Safety Requirements," Chapter 4.5, "Facility and Structures Safety, Asbestos," and with Section 01060, Langley Safety and Environmental Requirements, Asbestos Operations.

Asbestos is a naturally occurring family of fibrous mineral silicates. Prior to 1980, asbestos materials were incorporated into a variety of building materials (asbestos containing building materials or ACBM) because they exhibit commercially desirable properties such as fire resistance, insulation against heat, cold, noise and electricity, high tensile strength and acid resistance. Examples of ACBM include:

Sprayed or troweled on surfacing material	Ceiling tile
Pipe insulation	Roofing felts
Textiles	Floor tile and mastic
Concrete-like materials	Caulking putty and spackle

Since the late 1970's, manufacture and distribution of many types of asbestos containing materials have either been banned or fallen under more stringent regulation.

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.

The presence of asbestos in a building does not necessarily mean the health of the occupants is endangered. If asbestos-containing material remains in good condition and is unlikely to be disturbed, exposure will be negligible; however, when ACBM is damaged or disturbed, asbestos fibers can be released and present a potential health hazard to facility occupants.

LaRC does not remove or implement other abatement techniques simply because asbestos is present in a building. Removal or other abatement will be undertaken only if the condition of the asbestos is such that the health of facility occupants is jeopardized.

8.2 REQUIREMENTS

8.2.1 Regulations

Below is a brief description of agencies that regulate asbestos:

- The EPA regulates the emission of asbestos into the environment under three acts: the Clean Air Act (CAA), the Toxic Substances Control Act (TSCA), and the Federal Water Pollution Control Act (FWPCA).
- The Occupational Health and Safety Administration (OSHA) regulates the exposure of personnel to asbestos in general and construction industries involving renovation and demolition operations.

- The Commonwealth of Virginia Regulations parallel the Federal regulations but are more restrictive with regards to renovation notification requirements. State licensing of personnel involved with asbestos work (e.g. inspectors, abatement workers) is required for LaRC asbestos operations. Landfills that accept asbestos containing material must also be licensed by the State.

8.2.2 Asbestos Disposal

Although not considered hazardous waste under RCRA, disposal of friable asbestos waste is regulated under 40 CFR 61, Subpart M. Disposal is permissible only in state licensed landfills. Transportation of open containers of asbestos waste is prohibited under Department of Transportation Regulations (49 CFR Parts 173.216 and 173.240).

8.2.3 Configuration Management On-Line (CMOL)

Records of LaRC facilities that have friable ABCM are included in the Center's Configuration Management On-Line (CMOL) system, in the form of Asbestos Configuration Management Reports. The CMOL system is used by LaRC's Safety and Industrial Hygiene personnel, as well as FEC's and FSH's. Access to CMOL requires a user identification and password to obtain any documentation. The Asbestos Configuration Management Reports are used to document changes in ACBM condition, asbestos removal projects, and overall, to minimize exposure of facility occupants to asbestos. Additional information can be found in LPR 1740.4, "Facility System Safety Analysis and Configuration Management."

8.2.4 Posting and Labeling

Warning signs and labels are required to inform facility occupants of the presence of ACBM. Labeling and posting procedures can be found in OSHA's 29 CFR 1910.1101. Signs and labels are available from the LaRC Industrial Hygiene personnel at extension 43205.

8.3 RESPONSIBILITIES

8.3.1 Office of Safety and Facility Assurance (OSFA)

- Conduct inspections to identify ACBM and assess condition. Recommend remedial action as necessary; periodically re-inspect and reassess.
- Maintain ACBM location inventory and documentation in CMOL.
- Provide signs and labels to facility personnel.
- Approve Asbestos Safety Permits and contractor removal procedures.
- Monitor and inspect abatement operations as appropriate.

8.3.2 Environmental Management Office (EMO)

- Review work requests involving asbestos removal and remediation.
- Arrange for asbestos disposal when appropriate.
- Review and sign asbestos manifests for both contractor and LaRC disposal.

8.3.3 Facility Safety Heads (FSH)

- Have access to the CMOL system if their facility has ACBM.
- Ensure asbestos materials/areas in their facilities are properly labeled and facility personnel are properly trained.
- Notify OSFA of changes to their facility's ACBM inventory or condition.

8.3.4 Facility and Equipment Support Services (FESS)

- Use the CMOL system to maintain/access LaRC's ACBM location inventory.
- Review work requests, facility renovation/demolition plans, and other projects for asbestos involvement. Refer to OSFA as appropriate.
- Prepare Asbestos Safety Permits for asbestos work and forward to OSFA.
- Notify OSFA and FSH's of changes of ACBM inventory and condition.

8.3.5 Asbestos Removal/Abatement Operations

In conjunction with the requirements of Section 01060, Langley Safety and Environmental Requirements, "Asbestos Operations," and LPR 1740.2, Chapter 4.5, "Facility and Structures Safety, Asbestos," asbestos removal and/or abatement projects must follow the requirements listed below:

- Submit job-specific procedures to the EMO at Mail Stop 418 before starting work. No work may begin without prior approval from the EMO.
- Provide to the EMO the name and physical location of the disposal site. Only facilities approved by the State of Virginia may be used for asbestos disposal.
- Notify the appropriate regulatory agencies in accordance with 16VAC 25-20-30. Notification is required as follows:
 1. Twenty days prior to beginning work, notify the Virginia Department of Labor and Industry for operations that involve removal of 10 or more linear feet of friable thermal insulation or any other ACBM that becomes friable during handling
 2. Ten days prior to beginning work, notify the EPA for operations that involve the removal of 160 or more square feet of ACBM or 260 or more linear feet of ACBM.
- At least two days prior to shipment of asbestos off LaRC property, submit a completed asbestos waste manifest to the EMO at Mail Stop 418, Facility 1183, Room 110. (See example form at Figure 8-1.) The EMO will only sign complete manifests.

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

- Transport the asbestos material off site in accordance with 40 CFR 173.216.

- Dispose of the asbestos in accordance with 40 CFR 61, Subpart M and state regulations.

Figure 8-1

EXAMPLE WASTE SHIPMENT MANIFEST

WASTE SHIPMENT RECORD

BEFORE COMPLETING, CAREFULLY READ INSTRUCTIONS ON REVERSE

Generator	1. Work site name and mailing address Work site: _____		Owner's Name	Phone No.	
	NASA LaRC MS 418 Bldg. 1183 Hampton VA 23681		SAME	(757)864-4232	
	2. Operator's Name and Address REMOVAL CONTRACTOR NAME & ADDRESS			Phone No.	
	3. Waste disposal site (WDS) name, mailing address, and physical site location DISPOSAL SITE ADDRESS			WDS Phone No.	
	4. Name and address of responsible agency COMMONWEALTH OF VA DEPT. OF AIR POLLUTION CONTROL P.O. BOX 10089 RICHMOND, VA 23240				
	5. Description of materials RQ ASBESTOS, 9, NA2212 (FRIABLE ASBESTOS) PGIII		6. Containers	7. Total Quantity	
			No.	Type	(yd ³)
	IF Friable (enter required information in blocks 6 & 7) →		→		→
	IF Non-Friable (check one): <input type="checkbox"/> Category I <input type="checkbox"/> Category II →		→		→
	NOTE: Category I includes asphalt roofing products, resilient floor covering, packing, gaskets, BUT NOT TRANSITE. (See Instructions)				
8. Special handling instructions and additional information IF SPILLED, CONTAIN IMMEDIATELY; MUST WEAR RESPIRATOR AND PROTECTIVE CLOTHING.					
9. OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.					
Printed/typed name & title		Signature	Month Day Year		
LaRC Environmental Management Office					
Transporter	10. Transporter 1 (Acknowledgment of receipt of materials)				
	Printed/typed name & title:		Signature	Month Day Year	
	Address:				
	Phone:				
Disposal Site	11. Transporter 2 (Acknowledgment of receipt of materials)				
	Printed/typed name & title		Signature	Month Day Year	
	Address and telephone no.				
12. Discrepancy indication space					
13. Waste disposal site Owner or Operator: Certification of receipt of asbestos materials covered by this manifest except as noted in item #12.					
Printed/typed name & title		Signature	Month Day Year		

WHITE & BLUE - Transporter's Copy GREEN - Disposal Facility Copy YELLOW - Generator's Copy PINK - Generator's Copy
GOLDENROD - Generator's Copy (TO BE LEFT AT JOB SITE ON PICK-UP)

Chapter 9

9. ENVIRONMENTAL NOISE ABATEMENT

9.1 GENERAL

Noise is unwanted sound. The loudness of a sound is measured in units called decibels (dB). Zero on the decibel scale represents the lowest limit of human audible perception of sound. The level of normal conversation is approximately 60 dB. Studies have shown that exposure to excessive and even moderate noise intensities for extended periods of time can cause irreparable damage to the human ear. Nationwide, as population has increased and become denser, noise levels have risen creating growing concerns for noise pollution and the need for abatement.

9.2 REQUIREMENTS

The goal of the Noise Control Act of 1972 is to protect all Americans from noise that jeopardizes their health and welfare. This legislation was designed to establish noise standards and to regulate noise emissions caused by commercial products such as transportation and construction equipment. The Act also specifies that Federal agencies should comply with Federal, state, and local requirements regarding the control and abatement of noise. Military weapons and combat-use equipment are exempt from regulation.

Many state and local governments have developed their own environmental noise regulations as a result of the Quiet Communities Act of 1978. This statute amended the Noise Control Act by providing state and local governments with funds to promote the development of noise control programs on a local level, as long as the actions at the local level are consistent with Federal regulations.

The Occupational Safety and Health Administration (OSHA) Noise Standards establish regulations and guidelines for workplace noise pollution. The OSHA standards are 90 dB measured for a duration of 8 hours, 95 dB for 4 hours, 100 dB for 2 hours, and 140 dB maximum for impulse noises.

9.3 RESPONSIBILITIES

All LaRC employees are responsible for seeing that noise levels are maintained at an acceptable level. The Center Noise Control and Hearing Conservation Program is defined in LPR 2710.1, "Langley Research Center Noise Control and Hearing Conservation Program."

Concerns about environmental noise levels may be addressed to the EMO at extension 43500.

Chapter 10

10. RECYCLING AND NON HAZARDOUS SOLID WASTE MANAGEMENT

10.1 GENERAL

Recycling at LaRC is mandated by Executive Order (E.O.) 13101, "Greening the Government through Waste Prevention, Recycling, and Federal Acquisition" and Virginia State House Bill 1757. Executive Order 13101 requires federal agencies to establish a goal for solid waste prevention and a goal for recycling or solid waste diversion. Goals include long-range goals to be achieved by the years 2005 and 2010. The agency set a solid waste diversion rate of 25 percent by 2005 and a 35 percent diversion rate by 2010. Commonwealth of Virginia House Bill 1757 mandates the City of Hampton to recycle at least 25 percent of the municipal solid waste produced within the City. LaRC, located within the City of Hampton, assists the City in meeting its recycling responsibility.

The LaRC recycling program began in 1991 with the collection of white and mixed paper, scrap metal, and toner cartridges. LaRC currently recycles white and mixed paper, cardboard, toner cartridges, used oil, batteries, fluorescent light bulbs, scrap metal, precious metal, antifreeze, and used tires. There is no formal aluminum can recycling program at LaRC; however, facility staff members collect aluminum cans for recycling on their own initiative.

The LaRC recycling information homepage is <http://osemant1.larc.nasa.gov/rapp/>. It keeps Center employees abreast of the recycling program. As recycling information changes or new items are collected, the web pages will be updated to reflect those changes.

To keep track of how the program is doing, the EMO keeps metrics on the quantity of materials collected and the funds recovered or cost to the Center. Funds collected from the sale of recycled goods are reinvested in the recycling program or used to support the pollution prevention program. Metrics for the Center's recycling programs are updated monthly on the recycling homepage.

10.2 GOALS AND OBJECTIVES

LaRC is committed to reducing solid waste and hazardous waste from Center activities. Doing so is a joint effort between many organizations as well as Center employees. Training and outreach are vital elements to having a successful recycling program. The overall objective of LaRC's recycling program is to have a cost-effective recycling program that meets the following goals:

- Meet or exceed the recycling goals established by E.O. 13101.
- Maximize collection and recycling of recyclables.
- Maximize proceeds from selling the recyclables.
- Contribute to the preservation and conservation of the environment and its resources.

10.3 RESPONSIBILITIES

As previously mentioned, LaRC is committed to reducing solid waste and hazardous waste from Center activities. Doing so is a joint effort between the EMO, the OLM, FEC's, and Center employees. Listed below are the responsibilities for each.

10.3.1 Environmental Management Office (EMO)

- Manage and oversee the Center's recycling program.
- Collect recyclable items in a timely manner throughout the Center.
- Prepare and mail monthly billing invoices to contractors.
- Act as the Center's official representative with government and private parties on recycling related matters.
- Track the Center's progress in meeting established recycling goals.
- Provide support, guidance, training, and assistance to Organizational Units in implementing the recycling program in order to meet or exceed established goals.
- Collect monthly metrics on the recycling program and make these available to Center personnel on the recycling webpage through the EMO homepage.
- Seek out new items to recycle and new commodity markets to maximize proceeds to LaRC from the sale of LaRC recyclable materials.

10.3.2 Office of Logistics Management (OLM)

- Provide day-to-day management of the collection of scrap metal, tires, precious metals and antifreeze.
- Remove scrap metal from facilities in a timely manner.
- Provide EMO with monthly detailed estimates of usage categories for each metal collected.
- Provide technical assistance to Center personnel.
- Receive training on LaRC's recycling procedures.
- Monitor recycling activities to ensure compliance with established recycling procedures.
- Provide copies of the scrap metal delivery order tickets to the EMO within three working days of each month.
- Maximize the collection of these recyclable materials and maximize the proceeds to LaRC from the sale of the recyclable materials.

10.3.3 Facility Environmental Coordinators (FEC's)

- Ensure facility personnel follow established procedures.

- Post copies of the relevant recycling procedures and updates in a prominent location and/or near recyclable material collection areas.
- Monitor recycling collection areas and arrange for pickup, if necessary. Ensure collection containers are not contaminated with non-recyclable materials.
- Educate facility employees about the recycling program or contact the EMO at extension 48058 to arrange for specific training.
- Inform the EMO of additional items that could be recycled or suggest improvements for the Center's recycling program.

10.3.4 Center Employees and Contractors

- Participate in the LaRC recycling program.
- Keep abreast of the Center's recycling program information that is distributed by the FEC or on the EMO recycling homepage <http://osemant1.larc.nasa.gov/rapp/>.
- Ensure collection containers are not contaminated with non-recyclable materials.
- Inform the FEC or the EMO of additional items that could be recycled or improvements for the Center's recycling program.
- Attend facility training on LaRC's recycling procedures.

10.4 MANAGEMENT OF RECYCLABLE ITEMS

10.4.1 White Paper

Collect white paper in the smaller blue containers provided by the EMO. When an individual container is full it must be emptied into the large **BLUE** container located at the facility's central collection area of your office or shop.

Central collection containers are emptied by the Environmental Support Contractor on a regular schedule or call-in basis, based on the building's generation rate (see website for schedule - <http://osemant1.larc.nasa.gov/rapp/>).

What is considered recyclable white paper?

RECYCLE THESE:

Computer Paper
White Letterhead
White Typing Paper
White Photocopy Paper
Fax Paper
White Memos
White Paper with colored ink

DO NOT RECYCLE THESE:

Food Wrappers or Cups
Laser Print Labels
Overheads
Paper of any other color than white

Who do I contact for a paper pickup? Call the recycling office at extension 48058.

10.4.2 Mixed Paper

The EMO does not currently provide small green containers. Collect mixed paper in a labeled designated container. When a container is full it must be emptied into the large **GREEN** container located at the facility's central collection area.

Central collection containers are emptied by the Environmental Support Contractor on a regular schedule or on a call in basis, based on the building's generation rate (see website for schedule; <http://osemant1.larc.nasa.gov/rapp/>)

What is considered mixed paper?

RECYCLE THESE:

Colored Paper
Glossy Paper
Post-it Notes
Manila Folders
Catalogs and Magazines
(**stapled bindings only**)

DO NOT RECYCLE THESE:

Food Wrappers or Cups
Laser Print Labels
Carbon Paper
Overheads
Catalogs and Magazines
(**glue bindings**)

Who do I contact for a paper pickup? Call the recycling office at extension 48058.

10.4.3 Cardboard

- Large Generators

Large generators of cardboard are those facilities that generate large quantities of cardboard on a regular basis, either weekly or bi-weekly. These facilities have special collection bins to accommodate the larger volume of cardboard.

Large generators must break down the cardboard and place it in the large collection bin. Facility Environmental Coordinators (FEC's) can make arrangements for a facility to receive a large generator collection bin or establish regular pickups by calling extension 48058.

- Small Generators

Small or infrequent generators of cardboard are those facilities who occasionally have cardboard from supply or paper deliveries. Small generators must break down the cardboard and place it next to the recyclable paper collection bins. It will be picked up when paper is collected for recycling. See the paper pickup schedule on the recycling web page for more information.

- Special Cardboard Pickup

Special cardboard pickup can be arranged for your facility by calling the recycling office at extension 48058.

What is considered cardboard?

RECYCLE THESE:

Corrugated Cardboard
(any color or thickness)

DO NOT RECYCLE THESE:

Paperboard (e.g., cereal boxes)

Cardboard with food contamination
(e.g., pizza boxes)

10.4.4 Toner Cartridges

All toner cartridges are recyclable with the exception of Thermal Transfer Toner Cartridges. The Thermal Transfer Toner Cartridges should be sent to Property Disposal where they in turn will be sent to the burn center. All other toner cartridges are recyclable and must be placed inside the “bag” and the box that the new replacement cartridge came in. The box must be taped closed. Used toner cartridges shall be placed next to the paper bins at the facility’s central collection area.

For facilities with weekly paper pickup, your cartridges will be picked up when the paper is collected. For facilities that are on an on-call basis for paper pickup, call the on-site recycling office at extension 48058 for a toner cartridge pickup. Allow three business days for cartridge pickup for on-call facilities.

10.4.5 Scrap Metal

Scrap metal shall be collected in separate containers designated as:

- Aluminum
- Copper and Copper Wire
- Mixed Metal (including steel)

Call extension 46339 for delivery and pickup of containers, or questions concerning scrap metal.

10.4.6 Batteries

Batteries are subject to Resource Conservation and Recovery Act (RCRA) and Environmental Protection Agency (EPA) hazardous waste management regulations. LaRC has a recycling program that meets RCRA and EPA regulations for batteries.

Trash disposal is prohibited for batteries. See Section 5.6 of the Hazardous Waste Management Chapter for information regarding management of batteries.

For pickups of batteries, waste generators or FEC’s should contact the EMO at extension 5-DRUM.

10.4.7 Fluorescent Light Bulbs

Fluorescent light bulbs are subject to Resource Conservation and Recovery Act (RCRA) and Environmental Protection Agency (EPA) hazardous waste management regulations. LaRC has a recycling program that meets RCRA and EPA regulations for fluorescent light bulbs.

Trash disposal is prohibited for all fluorescent light bulbs. For information regarding management of fluorescent light bulbs, see Section 5.6 of the Hazardous Waste Management Chapter. For pickup of fluorescent light bulbs, waste generators or FEC's may contact the EMO at extension 5-DRUM.

10.4.8 Aerosol or Paint Spray Cans

Aerosol or paint spray cans are subject to Resource Conservation and Recovery Act (RCRA) and Environmental Protection Agency (EPA) hazardous waste management regulations. LaRC has a recycling program that meets RCRA and EPA regulations for aerosol/paint spray cans.

Trash disposal is prohibited for all aerosols or paint spray cans. For information regarding management of all aerosol or paint spray cans, see Section 5.6 of the Hazardous Waste Management Chapter. For pickup of all aerosol or paint spray cans, waste generators or FEC's may contact the EMO at extension 5-DRUM.

10.4.9 Oil

Many LaRC facilities and personnel generate waste oil in their daily operations. As a generator of waste oil, LaRC is subject to the RCRA requirements in 40 CFR part 279. These requirements apply to facilities or persons that generate, store, transport, market, burn, and recycle "used oil." All LaRC facility personnel or contractors who use oil are required to manage used oil according to the following guidelines:

- Request a labeled accumulation container/drum from the EMO. **NOTE: REUSE OF PRODUCT DRUMS IS PROHIBITED.** See Section 5.5.
- Ensure that oil accumulation containers/drums are maintained in good condition and are non-leaking.
- Facilities that store more than 220 gallons (4 x 55-gallon drums) of used oil outside must post a spill plan at each storage site.
- Do not mix used oil with solids, solvents or other waste unless absolutely necessary (i.e. spill cleanup).
- Notify the EMO at extension 44232 in the event of a large spill.
- For used oil pickup, follow the procedures outlined in Section 5.5, "Waste Management and Disposal Procedures."

The generator may call the EMO at extension 5-DRUM to request:

- Used oil pickup
- Accumulation container issue
- Blank waste disposal forms
- Used oil management procedures and information.

10.5 NON-HAZARDOUS SOLID WASTE MANAGEMENT

10.5.1 Background

The Resource Conservation and Recovery Act (RCRA) provides for the regulation of non-hazardous solid waste. While hazardous waste management receives most national emphasis, proper management of non-hazardous solid waste is still important. Hazardous waste management is discussed in Chapter 5. This section focuses on non-hazardous solid waste that is discarded in a sanitary landfill.

10.5.2 Requirements

RCRA provides for regulation of solid waste in 40 CFR 240-246. The Hazardous and Solid Waste Amendments (HSWA) to RCRA enable regulation, including permitting, of Solid Waste Management Units (SWMU's) particularly where any possibility exists that such units were used for hazardous waste disposal. The RCRA regulations also provide for various means of recovering value from waste. Wastes may be recycled, reclaimed, used as a fuel supplement, or sold for profit. Executive Order 13101, "Greening the Government through Waste Prevention, Recycling, and Federal Acquisition" requires all Federal agencies to recycle.

10.5.3 Trash Disposal

Items that are discarded in a sanitary landfill should not pose a potential hazard to human health or the environment. The following items are some examples of what is allowed in a sanitary landfill:

- Garbage that is discarded material, composed of animal, vegetable, or other organic material.
- Trash (rubbish) that is combustible and noncombustible materials.
- Refuse that is waste products having the character of solids rather than liquids, and composed of materials such as trash, garbage, and litter.

The following items are prohibited from being discarded in a sanitary landfill:

- Hazardous Material - A substance or material that has been designated under 49 CFR 171 and 173. (see Chapter 5)
- Recyclable Items - A material that is being recycled on the Center. (see Section 10.4)
- Pesticide containers that have not been tripled rinsed and crushed.
- Excess material and equipment. (Contact the Office of Logistic Management at extension 43570).

10.5.4 Facility Environmental Coordinators (FEC's)

- Ensure facility personnel and contractors follow established non-hazardous waste management procedures.
- Educate facility employees about the non-hazardous solid waste management program or contact the EMO at extension 43500 to arrange for specific training.

10.5.5 Center Employees and Contractors

- Ensure that non-hazardous solid wastes are properly segregated and disposed of in accordance with the procedures contained in this Chapter.

Chapter 11**11. WETLANDS****11.1 GENERAL**

Wetlands are defined as “areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

NASA LaRC is located in an area of low topographic relief surrounded by a shallow estuarine environment. The predominant wetland areas in the vicinity of LaRC are the tidal marsh wetlands associated with Brick Kiln Creek and Tabbs Creek.

11.2 REQUIREMENTS

Section 404 of the Clean Water Act requires a permit from the U.S. Army Corps of Engineers (ACOE) for all activities involving dredging or filling of U.S. waters, including wetlands. The EPA is the permitting authority and the U.S. Fish and Wildlife Service (USFWS) is a reviewing agency.

Executive Order 11990 requires each Federal agency to “take action to minimize the destruction, loss, or degradation of wetlands, unless there is no practicable alternative, and then the proposed action must include all practicable measures to minimize harm to wetlands.” Federal agencies must provide an opportunity for early public review of any plans or proposals for new construction in wetlands.

NASA regulations on wetlands management specified in 14 CFR 1216.2, require NASA Centers to include wetland protection in their master planning activities and consult with the ACOE, USFWS and FEMA.

The Virginia Wetlands Act (Chapter 13, Title 28.2-1300 through 28.2-1320) requires a permit from the Virginia Marine Resources Commission (VMRC) for any activity that would use or develop a tidal wetland.

11.3 RESPONSIBILITIES**11.3.1 Environmental Management Office (EMO)**

- Maintain an accurate inventory of all Center wetlands, including maps and appropriate descriptions.
- Validate the need for permit applications.
- Initiate all wetland permit applications.
- Maintain copies of all existing wetlands permits.
- Coordinate with Capital Investment Planning Office for inclusion of wetland inventories into the Center Master Plan.

11.3.2 Facility and Equipment Support Services (FESS)

- Review all proposed projects to determine activities in wetlands.
- Complete an environmental permit checklist and environmental analysis checklist for each proposed action. The checklists can be found in Chapter 7, Figure 7-1 and Chapter 2, Figure 2-2, respectively.
- Coordinate with the EMO for wetland permit applications.

11.3.3 Research and Technology (R&T) Competency Areas, Program Offices, Agency Functions, and Business Management Offices Initiating Projects

- Personnel initiating projects shall coordinate proposed actions affecting wetlands with the EMO prior to project development.

11.3.4 Capital Investment Planning Office

- Provide information for permit applications as required.

Chapter 12

12. ENDANGERED AND THREATENED WILDLIFE AND PLANTS

12.1 GENERAL

Many species of terrestrial wildlife have become rare or endangered within the Virginia peninsula due to continuing intensive development. Of major concern are the reptiles and amphibians that are unable to immigrate to undisturbed areas because of the topographic nature of the area, a peninsula, and their limited mobility.

12.2 REQUIREMENTS

The Endangered Species Act of 1973 (16 U.S.C. 1531 through 1543) was enacted “to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved and to provide a program for the conservation of such endangered species and threatened species.” The Act states “all Federal departments and agencies shall seek to conserve endangered species and threatened species and utilize their authorities in furtherance of this Act.” In addition to the Endangered Species Act of 1973, 50 CFR 17.11-12, implemented in 1983, addresses endangered and threatened wildlife and plants and provides a listing by name.

12.3 ENDANGERED AND THREATENED SPECIES IN OR NEAR NASA LaRC

Old Dominion University (ODU) conducted fish, wildlife, and plant surveys facility-wide in 1995. The general findings are included below. A more detailed listing of the endangered and threatened species at NASA LaRC can be found in Chapter 6 of the Environmental Resource Document which is available by calling the Environmental Management Office (EMO) at extension 43500. The ODU study is also available through the EMO.

12.3.1 Reptiles and Amphibians

Sixteen species of reptiles and amphibians were identified from NASA LaRC and 19 additional species should occur in the area, but were not encountered during the study. One reptile, the canebrake rattlesnake (*Crotalus horridus atricaudatus*) is listed by the State as an endangered species. The Federal Government lists the Kemp’s Ridley sea turtle as a Federal endangered species. A third species, the Eastern glass lizard (*Ophisaurus ventralis*), is listed on the State list as a threatened species. In addition, three northern diamondback terrapins (*Malaclemmys terrapin terrapin*), a Federal species of concern, were captured, identified, and released (ODU, 1995).

12.3.2 Mammals

Fourteen species of mammals were encountered at NASA LaRC during the ODU survey, and 12 additional species are expected to occur. None of these mammals are listed as threatened or endangered; however, three of the species found to inhabit NASA LaRC are listed as species of special concern by the Commonwealth of Virginia--the river otter (*Lutra canadensis*), the marsh rabbit (*Sylvilagus palustris*), and the small star-nosed mole (*Condylura cristata parva*).

12.3.3 Birds

A total of 118 species of birds were observed at NASA LaRC during the survey. Of these, 7 are listed as threatened or endangered by the State or Federal government and 17 more are listed

as species of special concern in the Commonwealth of Virginia. The bald eagle (*Haliaeetus leucocephalus*), gull-billed tern (*Sterna nilotica*), and the Henslow's sparrow (*Ammodramus henslowii*) were determined to be transient migrants who use the NASA LaRC facility solely as a foraging stop. The northern harrier (*Circus cyaneus*), brown creeper (*Certhias americana*), winter wren (*Troglodytes troglodytes*), hermit thrush (*Catharus guttatus*), and the purple finch (*Carpodacus purpureus*) have the potential to nest at NASA LaRC, though currently none of them do. In addition, the brown pelican (*Pelicanus occidentalis*), least tern (*Sterna antillarum*), and great egret (*Ardea alba egretta*) are unlikely to nest at NASA LaRC due to lack of suitable nesting habitat.

12.3.4 Finfish

Thirty-three finfish species were collected at NASA LaRC during the ODU study. All species were common to the lower Chesapeake Bay and its tributaries. No endangered, threatened, or special concern species inhabit or use the NASA LaRC community.

12.3.5 Plants

No plants listed as threatened or endangered were found in any of the habitat types at NASA LaRC.

12.4 RESPONSIBILITIES

The LaRC Environmental Management Office shall monitor updates and/or changes to endangered and threatened wildlife and plant listings to determine if LaRC is impacted. Findings will be updated in the LaRC Environmental Resources Document that is available by contacting the EMO at extension 43500.

Chapter 13

13. ENVIRONMENTAL PLANNING FOR ANNUAL FACILITY MAINTENANCE

13.1 GENERAL

The purpose of this Chapter is to provide information on applicable regulatory requirements and procedures related to annual facility maintenance at LaRC.

13.2 REQUIREMENTS

Federal and State regulations are issued to ensure conformance to the Clean Water, Clean Air, and Hazardous Wastes Acts. Facility maintenance must be planned carefully so that the requirements of these regulations are consistently met during facility shutdown and startup phases.

Environmental compliance considerations must be a routine part of every maintenance operation. The Technical Project Engineer or Unit Maintenance Manager is responsible for requesting assistance and technical guidance from the Environmental Management Office (EMO).

13.3 RESPONSIBILITIES

13.3.1 General Maintenance Activities

- Identify oil or liquid waste discharges before the startup or shutdown of a unit. The EMO must be notified by personnel performing the startup or shutdown to ensure that the discharges are handled properly.
- Review maintenance plans to ensure that the liquid waste is disposed of in accordance with environmental regulations.
- Notify the EMO of any special procedures, decontamination, and analyses to be sure that the activity will not impact the environment.

13.3.2 Specific Maintenance Activities

- Asbestos Containing Material – Submit written notification to the State and in some cases the EPA detailing the asbestos removal activities. The written notification must be made to the State at least 20 days prior to the commencement of removal activities. The maintenance coordinator shall provide information to the OSFA and the EMO as described in Chapter 8 of this Manual.
- Effluents Management - Contact the EMO at extension 44230 prior to discharging any materials generated from maintenance activities. No discharges shall be made to the environment through the sanitary and storm sewers or open dumping on the ground without approval from the EMO. Chapter 3 discusses the Center's Water Program in detail.
- Used Oil – Conduct a waste oil analysis prior to removal of used oil from equipment to ensure the oil is changed only if it no longer meets specification requirements. Used oil

shall be transferred to an appropriately marked "Used Oil" drum. Chapter 10 discusses oil management in detail.

- Oily Water – Notify the EMO prior to generation of oily water to ensure that the oily water can be disposed of or processed through the oily water separator in a timely manner. The EMO will discuss with the generator options to reduce the oily water generation when necessary.
- Air Pollution Control – Contact the EMO at extension 43500 prior to installing or moving any permitted air sources. See Chapter 4, Air Quality, for more detail.
- Waste Generation – Notify the EMO prior to beginning work if the maintenance activity will generate waste. This will allow the EMO to prepare for proper disposal of the waste (e.g., sampling, waste characterization).
- Waste Management – Plan ahead of time for proper management of any wastes generated during the maintenance activity. All wastes must be accumulated and disposed of in accordance with the procedures described in Chapter 5.
- Accumulate and dispose of all wastes according to the waste management and disposal procedures described in Chapter 5 of this manual.

Chapter 14

14. OIL AND HAZARDOUS MATERIAL SPILL CONTROL

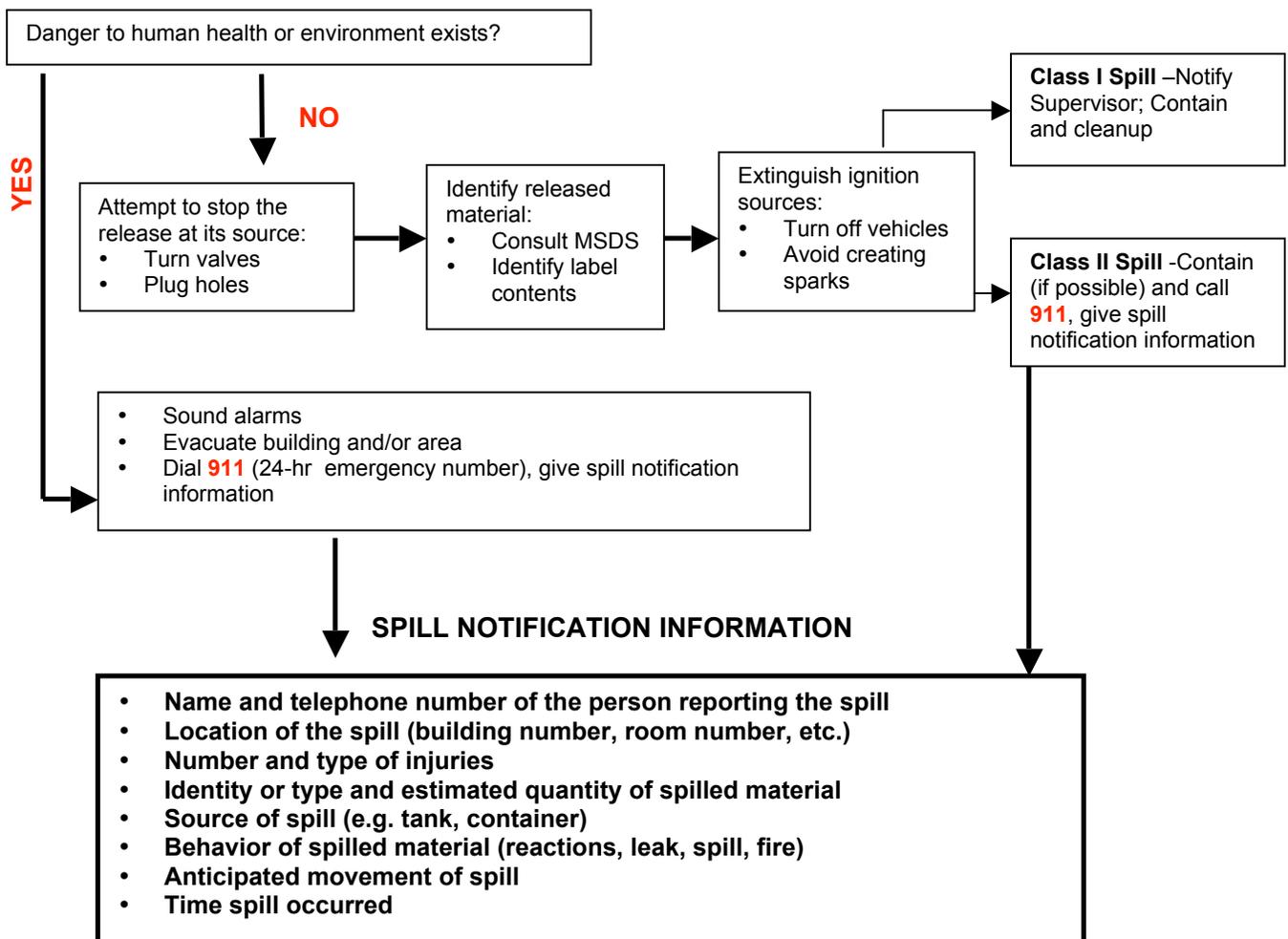
14.1 GENERAL

Implementing engineering and administrative controls in order to minimize spill potential is an important goal for the Center. The Center's Hazardous Materials Spill Contingency Plan, and its Oil Spill Prevention Control and Countermeasure (SPCC) Plan have been combined into one document called the NASA LaRC Integrated Spill Contingency Plan (ISCP). The Plan is available by contacting the EMO at extension 43500.

This Chapter contains the spill response information from the ISCP that is most critical for Center employees and on-site contractors to follow in the event of small and large spills of oil and/or hazardous materials. See Section 14.3, Spill Characterization, for clarification of small and large.

14.2 SPILL RESPONSE

Immediate action is necessary in the event of an oil or hazardous material spill of any size. Any LaRC personnel or on-site contractors that discover a spill should use the following decision tree:



14.3 SPILL CHARACTERIZATION

- Class I Spill

A Class I spill is relatively small in volume and presents low hazard potential to personnel or the environment. It can be contained and cleaned up with only minor difficulty by the user/custodian. Outside support is not necessary.

- Class II Spill

A Class II spill involves a large volume of material and may present significant hazard to personnel or the environment. Any spill reportable under EPA Regulations, 40 CFR302, 355, or 372 shall be considered a Class II spill. Other than initial containment, area control and notifications, full-scale containment and clean up of a Class II spill shall be conducted in accordance with the NASA LaRC Integrated Spill Contingency Plan.

Operations in which a Class II spill may occur, shall be conducted under a Potentially Hazardous Materials Safety Permit as provided for under LPR 1710.12, "Potentially Hazardous Materials." The Safety Permit shall identify spill potential and specify appropriate response.

14.4 RESPONSIBILITIES

Most spills are caused by equipment failure or operational errors. Spills can be minimized by implementing practicable and good engineering practices such as employee training, appropriate personnel selection, regular equipment maintenance and inspections. Should a spill occur, the following procedures and responsibilities apply:

14.4.1 User/Custodian

The primary responsibility for spill prevention lies with the user/custodian. Actions taken in the event of a spill shall be preplanned and incorporated into use procedures. The user/custodian shall:

- Ensure that all drain lines are plugged that are near indoor oil or hazardous materials storage areas. This includes Hazardous Waste Satellite Accumulation Areas (SAA).
- Use spill containment pallets for any oil or hazardous materials stored outside of the facility.
- Post a Spill Plan at each outside site that contains 220 gallons (4 x 55-gallon drums) or more of oil and/or hazardous materials. Examples of a Spill Plan can be obtained at: http://osemant1.larc.nasa.gov/cmts/hazwaste/spill/spill_response.htm
- In the event of a spill, follow the decision tree shown in Section 14.2.
- Properly dispose of spill debris (See Chapter 5, Waste Management).

14.4.2 Facility Environmental Coordinators (FEC's)

- Oversee proper management of each oil and/or hazardous materials storage site at his/her facility.

- Ensure that facility personnel are aware of the oil and/or hazardous materials storage areas at his/her facility and that appropriate personnel are familiar with spill control and response procedures.

14.4.3 Environmental Management Office (EMO)

- Notify regulatory agencies of spills as required by the Federal spill response reporting requirements (See Chapter 15, Emergency Planning and Community Right to Know).
- Maintain complete documentation for all Class II spills and for Class I spills of unusual nature.
- Conduct investigations into the causes of the incident and submit recommendations to prevent reoccurrence.
- Coordinate disposal of hazardous waste generated by spills.
- Participate in spill events as specified in the NASA LaRC Integrated Spill Contingency Plan.

Chapter 15

15. EMERGENCY PLANNING AND COMMUNITY RIGHT TO KNOW ACT

15.1 GENERAL

The Emergency Planning and Community Right-To-Know Act (EPCRA) was enacted in October 1986 in response to a growing concern about the effect of chemical releases on communities. EPCRA encourages and supports emergency planning efforts at the state and local level, and provides citizens and local governments with information concerning potential chemical hazards present in their communities. LaRC must comply with all sections of EPCRA as stated by Executive Order 13148.

15.2 REQUIREMENTS

15.2.1 Emergency Planning Notification

EPCRA Sections 301-303 require that facility owners or operators notify the State Emergency Response Committee (SERC) if their facility qualifies as an Emergency Planning Facility. The criteria for qualification is any facility that 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 (TPQ). The facility must notify the SERC within 60 days of first meeting this qualification.

The list of EHS's and TPQ information can be obtained at the following website:

<http://www.epa.gov/ceppo/ds-epds.htm#title3>

An Emergency Planning Facility must designate a Facility Emergency Coordinator and provide the name of that individual to the Local Emergency Planning Committee (LEPC) or the SERC if there is no established LEPC.

15.2.1 Spill Reporting

EPCRA Section 304 requires that the owner or operator of a facility must notify the appropriate authorities in the case of an accidental release of an EHS or CERCLA-defined hazardous substance equal to or greater than its reportable quantity (RQ). The consolidated chemical list that includes chemicals subject to reporting requirements under EPCRA is available at the following website:

<http://www.epa.gov/ceppo/ds-epds.htm#title3>

This notification must be made immediately by the owner or designated representative. See Chapter 14 for procedure information on spills and reporting.

As soon as possible after the release, EPCRA requires a written follow-up report for any release that requires immediate notification to the SERC and the LEPC.

15.2.3 Inventory Reporting

Facilities that have hazardous chemicals are required by the Occupational Safety and Health Act (OSHA) to maintain Material Safety Data Sheets (MSDSs) for the hazardous chemicals. EPCRA Sections 311-312 require the owner or operator of these facilities to:

- Submit MSDSs or a list of MSDS chemicals within 90 days from the day the facility first has on-hand the threshold quantities, and
- Submit annually (by March 1) a hazardous chemical inventory form (Tier II report) to the SERC, LEPC, and the local Fire Department that has jurisdiction over the facility.

15.2.4 Toxic Release Inventory

EPCRA Section 313 also requires a report of emissions of toxic chemicals from facilities that manufacture, process, import or otherwise use a listed toxic chemical in excess of specific threshold quantities. A Form R for all chemicals exceeding threshold quantities must be submitted by July 1 to the appropriate Federal (the EPCRA Reporting Center), State (VA DEQ), and local (HRSD) organizations.

15.2.5 Priority Chemical Reduction

Executive Order 13148 requires Federal agencies to reduce their use of “priority” listed EPCRA Section 313 toxic chemicals and other regulated hazardous substances and pollutants for identified applications by 50 percent by December 31, 2006. A draft list of these chemicals was compiled based on their significant harm to human health and/or the environment, and the availability of known substitutes for their designated use applications. Out of approximately 15 chemicals, the Center uses only three of the “priority” chemicals in significant amounts: lead, mercury and silver. The Center will focus on reducing the use of these chemicals where feasible. A complete list of draft chemicals can be found in the [CY 2002 Update Pollution Prevention Program Plan](#).

15.3 RESPONSIBILITIES

15.3.1 Facility Safety Heads (FSH's)

- Ensure that facility personnel who purchase hazardous chemicals follow the procedures outlined in LPR 1710.12 and maintain quantities at the lowest level consistent with needs.
- Ensure that MSDS's are obtained for any hazardous material stored or used at their facility.

15.3.2 Environmental Management Office (EMO)

- Notify the SERC within 60 days of meeting the criteria for an Emergency Planning Facility.
- Document and report spills of EPCRA regulated materials as required to the SERC, LEPC, and the National Response Center.
- Prepare the annual Tier II Inventory report for LaRC and submit to the SERC, LEPC, and Fire Department by March 1, annually.
- Prepare the toxic chemical emissions report for LaRC based on inventories submitted by FECs. The report shall be submitted annually by July 1 to the appropriate Federal, State and local organizations.
- Provide training about EPCRA to FEC's, FSH's and facility personnel.

15.3.3 Facility Environmental Coordinators (FEC's)

- Maintain a hazardous chemicals inventory for their areas of responsibility. The inventory shall be submitted and updated through the Chemical Material Tracking System (CMTS) (see Chapter 19). FEC's shall maintain quantities at the lowest level consistent with needs.
- Submit MSDSs not already in the CMTS library to EMO within 5 working days of receipt of item.
- Report spills to the EMO (See Chapter 14).

Chapter 16

16. UNDERGROUND STORAGE TANKS

16.1 GENERAL

Throughout the U.S., leaking Underground Storage Tanks (UST's) have become an increasing source of groundwater contamination. In addition to creating environmental and safety problems, leaks from UST's are costly to repair. For these reasons, proper design and installation of tanks is important to conserve resources and prevent future damage to the environment.

LaRC currently has several active UST's that hold materials such as gasoline, diesel, and fuel oil. See Figures 16-1 and 16-2 for LaRC UST location, size and material stored. As an owner and operator of UST's, LaRC must comply with all Federal and State regulations to ensure protection of health and the environment.

16.2 REQUIREMENTS

16.2.1 EPA Regulations

As a result of the Hazardous and Solid Waste Amendments of 1984, the EPA established a National Regulatory Program for the control of new and existing UST's and their associated piping that are used to store liquid petroleum products or other chemicals defined as "Hazardous Substances." In 1988, the EPA issued new performance standards for UST's and associated piping. The requirements were phased in over a ten-year period, with December of 1998 being the deadline for all tanks to be in compliance.

16.2.2 State Regulations

The EPA granted approval of Virginia's Underground Storage Tank Program in October of 1998. The Virginia Department of Environmental Quality (VDEQ) is the implementing agency for UST activities in the State. Many of Virginia's requirements exceed the stringency or scope of the Federal regulations. A list of the differences can be found in Chapter 11 of LaRC's Environmental Resource Document, available through the EMO.

16.2.3 LaRC Requirements

Systems must meet the following design and maintenance specifications:

- Tanks must retain structural integrity for their operating life.
- Tanks must be installed and repaired using nationally recognized standards and industry codes.
- Owners and operators must follow proper tank filling procedure. New and upgraded UST systems must use devices that prevent overfills and control or contain spills.
- Storage tanks must be closed by either removing them from the ground or leaving them in place after being drained, cleaned and filled with inert material.
- Outside access must be closed off and a site check made to ensure there has been no contamination from spills or leaks.

- Release detection must be phased in within a five-year period based on tank age.
- Corrosion protection and spill/overflow prevention must also be provided for all UST systems installed before December 1998.
- Any suspected releases must be investigated by tank owners/operators. Confirmed leaks and spills must be reported within 24 hours
- All UST systems must meet the current regulatory requirements.
- New tanks must be registered with the State and closed tanks must have closure certification from VDEQ.

16.3 RESPONSIBILITIES

16.3.1 Tank Operators

- In the event of a spill or leak, immediately notify the EMO at extension 43320 and ensure that corrective actions are initiated.
- Perform periodic inspection of each tank and maintain inspections on file.
- Monitor leak detection devices (where installed) and take corrective action if leakage is indicated.
- Ensure that adequate maintenance on each tank is performed to ensure satisfactory performance.
- Monitor filling of tanks to prevent spills and overflows.

16.3.2 Environmental Management Office (EMO)

- Report all leaks or releases to appropriate state and/or federal agencies.
- Maintain and update, when necessary, UST notification forms and submit to the State.
- Review design of UST systems to ensure compliance with the latest regulatory requirements.

16.3.3 Facility and Equipment Support Services (FESS)

- Review all proposed UST installations to determine necessity.
- Design or oversee the design of all UST systems to ensure compliance with the latest regulatory requirements.

16.3.4 NASA LaRC Employees

All LaRC employees are responsible for reporting any unusual visible releases from UST filling operations and/or fill ports to the EMO at extension 43320.

Chapter 17

17. HISTORICAL AND CULTURAL RESOURCES

17.1 GENERAL

As a Federal facility, LaRC is required to ensure the protection and proper management of its cultural resources, including historic and prehistoric properties. The Center must survey its properties to determine their significance, nominate eligible properties to the National Register of Historic Places, and consult with the State Historic Preservation Officer (SHPO), and the National Advisory Council on Historic Preservation, if a proposed or ongoing "undertaking" may effect such properties. If a proposed action will destroy or severely damage such a property, records and data must be gathered and maintained which show its original condition.

17.2 REQUIREMENTS

The National Environmental Policy Act of 1969 (NEPA), as amended (42 U.S.C. 4321-4347) establishes the Federal policy of protecting important historic, cultural, and natural aspects of our national heritage during Federal project planning. NEPA also obligates Federal agencies to consider the environmental consequences and costs of their projects and programs as part of the planning process.

To ensure that the Center meets the above requirements, coordination between LaRC personnel responsible for historic and cultural preservation and the appropriate regulatory agencies is essential. The Center's NEPA program, which is explained in Chapter 2, requires this coordination. It also requires environmental office concurrence (i.e. signature) on all project environmental reviews such as analyses, assessments, and impact statements. This includes the requirement to ensure historical and archaeological reviews are conducted as part of the NEPA process.

17.3 GOALS AND OBJECTIVES

The goal of LaRC is to protect through preservation, restoration, or rehabilitation, all sites, structures, and objects of historical, architectural, archeological, or cultural significance located on NASA property. In order to realize this broad goal, LaRC has developed the following objectives:

- Establish an historic preservation program integrated with the Center's master plan and other long range maintenance and development schedules.
- Establish an inventory of historic properties on the Center and publish it in the Center's Environmental Resource Document (ERD), available through the EMO.
- Nominate all properties that appear to be eligible for the National Register and publish a list in the ERD.
- Protect known and potential archaeological sites.
- Implement historic preservation projects as an integral part of the Center's maintenance and construction programs.

- Find adaptive uses for historic properties in order to maintain them as usable structures on the Center.
- Conserve historic properties to eliminate damage or destruction due to improper maintenance.
- Include historic properties in the program for the preservation of the overall environmental quality of the Center.

17.4 RESPONSIBILITIES

17.4.1 Capital Investment Planning Office

- Oversee the Center's historical and cultural preservation program.
- Provide input as required to keep the ERD current as to these matters.
- Provide input to the Environmental Management Office (EMO), for environmental analyses, assessments, and environmental impact statements as required.

17.4.2 Environmental Management Office (EMO)

- Oversee the NEPA process and review NEPA actions.
- Prepare and maintain the ERD.
- Assist with the preparation of environmental analyses, assessments, and EIS's as required.

17.4.3 Facility and Equipment Support Services (FESS)

- Assist with preparation of environmental analyses, assessments, and environmental impact statements as required by projects.

Chapter 18

18. POLLUTION PREVENTION

18.1 GENERAL

Pollution prevention is a multimedia approach to environmental management. It extends to air emissions, wastewater, and solid and hazardous wastes.

The Pollution Prevention Act of 1990 established pollution prevention as the preferred approach to environmental protection and waste management. The Act specifies a hierarchical strategy as follows:

- Pollution should be prevented or reduced at the source whenever feasible;
- Pollution that cannot be prevented should be recycled in an environmentally safe manner whenever feasible;
- Pollution that cannot be prevented or recycled should be treated in an environmentally safe manner whenever feasible; and
- Disposal or other releases into the environment should be employed only as a last resort and should be conducted in an environmentally safe manner.

Under this strategy, source reduction is defined as any practice that reduces the amount of hazardous substance, pollutant, or contaminant entering any waste stream or otherwise released into the environment prior to recycling, treatment, or disposal. 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.

18.2 REQUIREMENTS

The Executive Orders described below have been issued to require pollution prevention activities within federal agencies.

- Executive Order 13148 – *Greening the Government Through Leadership in Environmental Management* requires federal agencies to develop and implement written pollution prevention strategies and environmental management systems, and to reduce the use of selected toxic chemicals, hazardous substances and pollutants. In addition, federal agencies must comply with the planning and electronic reporting provisions of the Emergency Planning and Community Right-to-Know Act (EPCRA). EPCRA Toxic Release Inventory (TRI) releases and off-site transfers must be reduced, as well as criteria air pollutants attributed to facility energy. All Class I ozone-depleting substance procurement and use must also be phased out. Agencies are also mandated to purchase environmentally preferable and recycled products.
- Executive Order 13101 – *Greening the Government Through Waste Prevention, Recycling and Procurement* directs federal agencies to implement acquisition programs aimed at encouraging new technologies and building markets for environmentally preferable and recycled products. It also directs federal agencies to set recycling goals.

- NPR 8820.3 – *Pollution Prevention* establishes the framework for NASA’s pollution prevention program. This directive sets guidelines for toxic release inventory reporting, source reduction and recycling reporting, emergency planning and notification, material safety data sheets, extremely hazardous substances inventory reporting, NASA facility pollution prevention program planning, recycling, affirmative procurement, procurement of energy efficient computers, procurement of alternative fueled vehicles, and ozone depleting substances.

18.3 CENTER GOALS

NASA Langley Research Center is committed to an active policy of protecting the environment in all Center research and support activities. The Center has the following goals to reduce the quantity and toxicity of generated wastes through pollution prevention:

- Provide a clean and safe environment for our community.
- Ensure a safe and healthy workplace for NASA Langley personnel.
- Comply with all applicable laws and regulations while efficiently accomplishing our mission.
- Reduce future waste disposal liability.
- Reduce waste generation, hazardous material usage, and management costs.

To meet these goals, LaRC will seek out and implement opportunities to reduce or eliminate waste generation through pollution prevention methodologies. There are also other important benefits related to pollution prevention. These include reduced process operation and waste management costs, reduced waste and emissions, and reduced waste toxicity.

When applying pollution prevention methodologies to LaRC activities, source reduction technology is given priority. Where source reduction is infeasible, other pollution prevention methods such as material substitution, reuse, or recycling shall be used. Remaining wastes, for which no pollution prevention option is warranted, shall be treated to decrease volume or toxicity and managed responsibly to minimize effects on human health and the environment.

18.4 RESPONSIBILITIES

Pollution prevention is the responsibility of all LaRC personnel. Specific responsibilities follow:

18.4.1 Environmental Management Office (EMO)

- Understand the requirements of E.O. 13148 and the objectives of the NPR 8820.3.
- Update the LaRC Pollution Prevention Plan annually.
- Prepare and submit the annual pollution prevention progress report to NASA Headquarters.
- Review LaRC specifications and standards and, where possible, recommend reducing the acquisition and use of products containing extremely hazardous substances.

- Prepare metrics to document the Center's pollution prevention activities.
- Conduct pollution prevention opportunity assessments and recommend implementation of projects as appropriate.
- Request funding to support pollution prevention activities.
- Provide pollution prevention training as needed.

18.4.2 Facility Environmental Coordinators

- Understand the requirements of E.O. 13148 and the objectives of the NPR 8820.3.
- Minimize the volume and toxicity of waste generated by their facilities to the extent technically possible and economically feasible.
- Propose operations or projects for pollution prevention opportunity assessments.
- Schedule training to familiarize personnel with pollution prevention practices.
- Participate with the EMO in conducting pollution prevention opportunity assessments.
- Develop and implement pollution prevention projects.
- Provide the EMO with data to evaluate the effectiveness of pollution prevention projects.

18.4.3 Personnel serving as the Heads of Research and Technology Competency Areas, Program Offices or Business Management Offices

- Understand the requirements of E.O. 13148 and the objectives of the NPR 8820.3.
- Support all personnel participating in pollution prevention projects.
- Utilize pollution prevention concepts in operation and management activities.

18.4.4 Office of Logistics Management (OLM)

- Understand the requirements of E.O. 13148 and the objectives of the NPR 8820.3.
- Identify markets for recycled materials.
- Advise the EMO of property disposal and resale requirements.
- Provide the EMO with data to evaluate the effectiveness of pollution prevention projects.

18.4.5 All Personnel

- Understand the requirements of E.O. 13148 and the objectives of the NPR 8820.3.
- Participate in the pollution prevention program.
- Attend pollution prevention training courses at their facilities.

- Propose pollution prevention projects.
- Minimize the volume and toxicity of waste generated by their facilities to the extent technically possible and economically feasible.

Chapter 19

19. HAZARDOUS MATERIALS INVENTORY

19.1 GENERAL

The Center has a web-based Chemical Material Tracking System (CMTS) that assists facility personnel in managing their hazardous materials inventories and provides data to the Environmental Management Office (EMO) for regulatory reporting. Improved record keeping and better management of hazardous materials helps avoid compliance problems, reduce waste generation, and cut costs from raw material purchases and disposal activities. The CMTS can be found on-line at <http://osemant1.larc.nasa.gov/cmts/>.

19.2 REQUIREMENTS

Two major environmental statutes requiring hazardous material inventory and reporting are the Emergency Planning and Community Right-to-Know Act (EPCRA) and the Clean Air Act. Under EPCRA, the Center must report information related to the types and quantities of chemicals stored on site and any spills, chemical releases or off-site transfers of toxic chemicals (See Chapter 15). Additionally, the Clean Air Act requires the Center to keep a current air emissions inventory for activities conducted at the Center (see Chapter 4). The CMTS provides the pertinent data to generate both the EPCRA reports and air emissions inventory. The CMTS shall be used by Center and contractor personnel to comply with the inventory requirements in both environmental statutes and LPR 1710.12, "*Potentially Hazardous Materials*."

Material Safety Data Sheets (MSDS) are a key component in the generation of environmental compliance reports. MSDS's for materials currently used at the Center are maintained and available through the CMTS. MSDS's are required for all CMTS inventory items to ensure proper calculations for environmental reporting as well as to have important health and safety information available. In addition, OSHA has requirements for the maintenance and use of MSDS's as they provide important health and safety information.

19.3 RESPONSIBILITIES

This section outlines the roles and responsibilities of Center and contractor personnel in order to maintain chemical inventories. Additional responsibilities for inventory maintenance can be found in LPR 1710.12.

19.3.1 Environmental Management Office (EMO)

The EMO is the functional proponent of the CMTS and has primary responsibility to update and maintain the CMTS system.

- Provide support, guidance, policies and procedures, training, and assistance to LaRC personnel in implementing the CMTS program.
- Obtain an annual, Center-wide chemical material inventory and submit required regulatory reports.

19.3.2 Personnel serving as the Heads of Research and Technology Competency Areas, Program Offices or Business Management Offices

- Designate and provide support to the FEC and FSH in each facility to manage hazardous material inventories.
- Ensure that facility personnel follow requirements contained in this Chapter and LPR 1710.12, to include using the electronic Form 44 approval process.

19.3.3 Office of Logistics Management (OLM)

- Provide the following information to the EMO on an annual basis for all materials requiring MSDS's issued from stock. Data shall be in an electronic format readable in Microsoft Excel or Microsoft SQL Server 7.0.
 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, (for example 5 gallon can);
 8. For each NSN, provide a sum of total quantity (unit of issue) issued.
- Maintain stock cylinder data within the CMTS Cylinder Module.
- Maintain facility inventory, excluding stock items issued on the Center, in accordance with this Chapter.

19.3.4 Facility Environmental Coordinators (FEC)

- Maintain accurate inventory of hazardous materials using the CMTS. The CMTS database inventory for the facility **must** reconcile with the physical inventory. At a minimum, reconcile the physical inventory with the inventory reported on the CMTS **quarterly** (Mar 31, Jun 30, Sep 31, Dec 31).
- Certify accuracy of chemical inventories. Quarterly Inventory Update Certifications, found through CMTS Inventory Maintenance, must be submitted to EMO to indicate the inventories are accurate. Facilities with no hazardous materials must submit a quarterly No Hazardous Materials Certification, found at <http://osemant1.larc.nasa.gov/cmts/instruct/manuals/>.
- Ensure that MSDS's *not* in the CMTS are submitted to the EMO within five working days of receipt of the item and that MSDS's are attached to all items in the CMTS inventory.
- Manage the chemical inventory stored or used at the facility in accordance with all applicable health, safety, and environmental regulations.
- Manage the chemical inventory to reduce waste from shelf- life expiration. Where possible, and in accordance with all health and safety requirements, transfer unused or excess chemicals to the Center's Reuse Facility or other facilities where they can be used prior to reaching shelf-life expiration date.

19.3.5 Facility Safety Heads (FSH)

- Ensure that hazardous materials are purchased in accordance with procedures established in LPR 1710.12, to include using the electronic Form 44 approval process.
- Ensure that facility personnel are trained in proper hazardous material management practices.
- Ensure that a MSDS is obtained for all hazardous materials.
- Assist the FEC in maintaining an accurate inventory of hazardous materials.

19.3.6 Center Personnel and Contractor Personnel Responsibilities

- Ensure that the FEC, FSH, and CMTS inventory manager are notified when hazardous materials are brought into a facility.
- Use the electronic Form 44 approval process, in accordance with LPR 1710.12, to purchase hazardous materials and for sample products received from vendors. Off-site contractors receiving material from OLM **must** utilize the Form 44 process.
- Assist the FEC with maintaining an accurate inventory of hazardous materials in CMTS, to include ensuring a MSDS is obtained for each hazardous material.

Chapter 20

20. AFFIRMATIVE PROCUREMENT

20.1 GENERAL

Affirmative procurement is the process of purchasing environmentally preferable products. Affirmative procurement guidelines require the government and its contractors to purchase recycled content, environmentally preferable, and biobased products to the maximum extent possible in order stimulate their use. Environmentally preferable products are products and services having a lesser or reduced effect on human health and the environment when compared to competing products or services serving the same purpose. Biobased products are a commercial or industrial product, other than food or feed, which utilizes biological products or renewable domestic agricultural (plant, animal and marine) or forestry materials.

20.2 GOALS AND OBJECTIVES

The NPR 8830.1, *Affirmative Procurement Plan for Environmentally Preferable Products* states NASA's goals for affirmative procurement. NASA Centers shall acquire, in a cost-effective manner, items composed of the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition, without adversely affecting performance requirements, quality, or safety by doing the following:

- Implement a preference program for the acquisition of items covered by the
- Promote cost-effective waste reduction and recycling of reusable materials.
- Review specifications and amend the specifications, as appropriate, to encourage the use of recovered materials and not require virgin materials.

20.3 REQUIREMENTS

The following are major Federal statutes, Executive Orders, and NASA guidance that promote or require the application of affirmative procurement.

Resource Conservation and Recovery Act (RCRA) – In Section 6002 of RCRA, Congress directed the federal government to promote recycling by increasing its purchases of products containing recovered materials. RCRA requires EPA to designate products that can be made with recovered materials and to recommend practices for buying these products. In addition, RCRA requires NASA to develop an affirmative procurement program to promote the purchase of the EPA designated items and to annually review the effectiveness of the program.

Executive Order 13101 – Greening the Government through Waste Prevention, Recycling and Procurement - Directs federal agencies to implement acquisition programs aimed at encouraging new technologies and building markets for environmentally preferable and recycled products. It also directs federal agencies to set recycling goals.

Executive Order 13134 – Greening the Government through Developing and Promoting Biobased Products and Bioenergy - Extends federal procurement activities related to biobased products and services.

Federal Acquisition Regulation (FAR) Subpart 23.4, Use of Recovered Materials - Incorporates the affirmative procurement requirements into the Federal Acquisition Regulations.

NPR 8830.1, Affirmative Procurement - Establishes the framework for NASA's affirmative procurement program for items with recovered material content. It requires each NASA field installation to develop and implement an affirmative procurement program in conformance with RCRA Section 6002. The policy assigns responsibilities, and implementation and reporting requirements to be followed by each field installation.

20.3 RESPONSIBILITIES

Based on NASA requirements and other regulations, NASA LaRC employees and contractors have the following responsibilities to fulfill pertaining to purchasing items with recycled or recovered material content.

20.3.1 Office of Procurement

- Understand the requirements of E.O. 13101 and the objectives of the NPR 8830.1, to be aware of the EPA designated materials list and the Request for Waiver process.
- Ensure that the acquisition of products and services covered by applicable EPA guidelines are conducted in accordance with the requirements RCRA, E.O. 13101, the FAR, and NASA.
- Require statements of work or specifications to 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 designated items or other environmentally preferable products. These factors should be considered in acquisition planning for all procurement and in the evaluation and award of contracts, as appropriate.
- Collect and compile the necessary data and information in a timely manner and provide to the Environmental Management Office to facilitate the process of procurement planning for the annual Affirmative Procurement Report and other required reports.
- Provide guidance and facilitate acquisition planning with respect to environmentally preferable goods and services, including those available through Federal sources of supply.
- Assist in any market research necessary to determine the availability of environmentally preferable goods and services.
- Ensure that solicitations and contracts contain the appropriate provisions and FAR clauses to implement Affirmative Procurement (FAR Part 23)
- Review and revise specifications, product descriptions, and standards and commercial item descriptions during the acquisition planning stage to enhance NASA's procurement of recycled and environmentally preferable products.
- Ensure that contracts, grants, and cooperative agreements include provisions that require documents to be printed double-sided on recycled paper meeting or exceeding the standards established in EPA guidelines.

20.3.2 Environmental Management Office (EMO)

- Understand the requirements of E.O. 13101 and the objectives of the NPR 8830.1, to be aware of the EPA designated materials list and the Request for Waiver process.

- Develop and implement an affirmative procurement awareness program. NASA LaRC shall establish the affirmative procurement program for all designated EPA guideline items purchased. Newly designated items shall be incorporated into the affirmative procurement program within one year from the date EPA designated the new item.
- Advise procurement originators and contracting officers on acquisition strategies for environmentally preferable products and services including updates to the list of EPA's designated items.
- Review and approve Request for Waiver documentation and participate in Life-Cycle Cost and Life-Cycle Analysis (LCC and LCA) activities.
- Compile the Center's Annual Affirmative Procurement Progress Report.
- Provide support, guidance, and assistance to the Center in interpreting and implementing the EPA and applicable Agency guidelines for recovered materials.

20.3.3 Systems Engineering Competency

- Understand the requirements of E.O. 13101 and the objectives of the NPR 8830.1, to be aware of the EPA designated materials list and the Request for Waiver process.
- Review specifications and amend the specifications, as appropriate, to encourage the use of recovered materials.
- Ensure that construction products are procured with recovered content levels as specified in Part C - Construction Products of the Recovered Materials Advisory Notice.
- Collect and compile the necessary data and information in a timely manner and provide to the EMO to facilitate the process of procurement planning for the annual Affirmative Procurement Report and other required reports.

20.3.4 Office of Logistics Management (OLM)

- Understand the requirements of E.O. 13101 and the objectives of the NPR 8830.1, to be aware of the EPA designated materials list and the Request for Waiver process.
- Review Stores Stock specification and amend the specifications, as appropriate, to encourage the use of recovered materials.
- Collect and compile the necessary data and information in a timely manner and provide to the EMO to facilitate the process of procurement planning for the annual Affirmative Procurement Report and other required reports.

20.3.5 Contracting Officers

- Understand the requirements of E.O. 13101 and the objectives of the NPR 8830.1, to be aware of the EPA designated materials list and the Request for Waiver process.
- Provide guidance and facilitate acquisition planning with respect to Life Cycle Cost Analysis and environmentally preferable goods and services. The Life Cycle Cost Analysis should examine a product's environmental and economic effects throughout its lifetime, including raw materials extraction, transportation, manufacturing, use and disposal.
- Ensure solicitations and contracts contain the appropriate provisions and FAR (FAR Part 23, Subpart 23.4) clauses implementing affirmative procurement, including reporting requirements.

- Maintain information in the contract file on the contractor's response to FAR clause 52.223-8 "Estimation of Percentage of Recovered Materials for Designated Items".
- Collect and compile the necessary data and information in a timely manner and provide to the EMO to facilitate the process of procurement planning for the annual Affirmative Procurement Report and other required.
- Modify existing contracts, in consultation with the NASA technical point of contact, which do not have Federal Acquisition Regulations (FAR) clauses implementing Affirmative Procurement. The implementing clauses in the FAR are located at FAR Part 23, Subpart 23.4 – Use of Recovered Materials.

20.3.6 Procurement Originators

- Understand the requirements of E.O. 13101 and the objectives of the NPR 8830.1, to be aware of the EPA designated materials list and the Request for Waiver process.
- Consult early in the procurement process with appropriate parties (e.g., environmental specialists, contract specialists) to facilitate the process of procurement planning, which include LCC and LCA.
- Utilize statements of work or specifications which include elimination of virgin material requirements, reuse of products, use of recovered materials, energy and water efficiency, recyclability, and the use of designated items included in the CPG or other environmentally preferable products or services.
- Prepare Request for Waiver or justification for concurrence signature by the EMO if the guideline item is not available competitively, within a reasonable time frame, does not meet appropriate performance standards, or is only available at an unreasonable price.

Appendix A

A. Glossary of Terms

Categorical Exclusion (CE). "Categorical Exclusion" means a category of actions which do not individually or cumulatively have a significant effect on the human environment and which 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.

Clean Air Act of 1970. Requires prevention, control, and abatement of air pollution from stationary and mobile sources (also includes asbestos removal and disposal regulations, and greatly reduces the use of ozone depleting substances.)

Clean Water Act of 1970. 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.

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1989, amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986. Regulates cleanup of abandoned hazardous waste 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.

Construction of Facilities Project. The consolidation of applicable specific individual types of facility work, including related collateral equipment, which is required to fully reflect all of the needs, generally relating to one facility, which have been or may be generated by the same set of events or circumstances which are required to be accomplished at one time in order to provide for the planned initial operational use of the facility or a discrete portion thereof. Facility projects are subject to the NEPA requirements.

Emergency Planning and Community Right-to Know Act (EPCRA) of 1986. Provides local governments 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 (ESA) of 1973. Requires that all actions not jeopardize, threaten, destroy, or adversely impact critical habitats or the existence of endangered species.

Environmental Analysis. 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. A concise public document prepared by a Federal agency. The document serves to:
1. Briefly provide sufficient evidence and analysis for determining whether to prepare an EIS or a FONSI.
 2. Aid an agency's compliance with the Act when no EIS is necessary.

3. Facilitate preparation of an EIS when one is necessary.
- B. Shall include brief discussions of the need for the proposal, of alternatives as required by Sec. 102(2)(E), of the environmental impacts of the proposed action and alternatives, and a listing of agencies and persons consulted. It forms the basis of the decision of whether to prepare a FONSI or a Notice of Intent to Prepare an EIS.

Environmental Impact Statement (EIS). A document that is prepared for an action which may have significant impact on the quality of the human environment or which 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 U. S. EPA and published and distributed widely for public comment.

Environmental Monitoring Report. A report that monitors mitigation measures and other commitments associated with the project decision and changes in the project.

E.O. 13149 (April 21, 2000). Supersedes E.O. 13031. *Greening the Government Through Federal Fleet and Transportation Efficiency.* Mandates the reduction of petroleum fuel consumption, encouraging the use of alternatively fueled vehicles by Federal agencies to substantially reduce toxic and hazardous air pollutants.

E.O. 13148 (April 22, 2000). *Greening the Government Through Leadership in Environmental Management.* This order challenges the Federal government to publicly lead by example through applying source reduction in the management of its facilities and in its acquisition practices. It commits Federal agencies to publicly report toxic wastes and emissions and to reduce toxic releases by 40%, overall, by the end of 2006.

E.O. 13123 (June 3, 1999). Supersedes E.O. 12902 - *Greening the Government Through Efficient Energy Management.* Requires agencies to develop and implement programs to reduce water and energy consumption and increase energy efficiency at their facilities in a variety of ways including using alternative, less-polluting fuels and energy sources instead of petroleum-based products.

E.O. 13101 (September 14, 1998). *Greening the Government Through Recycling, Waste Prevention and Federal Acquisition.* Directs Federal agencies to promote cost-effective waste reduction and recycling activities. Requires all Federal agencies to develop an affirmative procurement program designed to purchase products with recycled content.

Finding of No Significant Impact (FONSI). A document prepared by LaRC staff 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. It is published in the Federal Register and/or coordinated with a State point of contact.

Major Facility Project. New construction in excess of \$1,500,000; Repair, Rehabilitation and Modification in excess of \$1,500,000, and Land Acquisition and Emergency Repair approved under the provisions of Section 308(b) of the National Aeronautics and Space Act of 1958 (as amended) at any cost. Requires a detailed EA.

Minor Facility Project. New construction in excess of \$500,000 and not exceeding \$1,500,000; Repair, Rehabilitation, and Modification in excess of \$500,000 and not exceeding \$1,500,000. Requires a detailed Environmental Analysis.

National Environmental Policy Act (NEPA) of 1969. 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.

Natural Historic Preservation Act (NHPA) of 1966. Requires Federal agencies to consider the effects of their 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 done. The notice shall briefly:

- A. Describe the proposed action and possible alternatives.
- B. Describe the agency's proposed scoping process including whether, when, and where any scoping meeting will be held.
- C. 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.

Research and Development (R&D). Those activities directed towards attaining the objectives of a specific mission, project, or program. All of NASA's aeronautics and space program elements are categorized within the R&D program categories. R&D funds are expended chiefly for contracted research and development and for research grants. Some R&D funds are also expended in support of in-house research (e.g., equipment purchases and other research support, but not civil service salaries).

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.

Research and Development Project. A discrete research and development activity, with a scheduled beginning and ending, which normally involves one of the following primary purposes.

- A. The design, development, and demonstration of major advanced technology hardware items;
- B. The design, construction, and operation of a new launch vehicle (and associated ground support) during its research and development phase; or,
- C. The construction and operation of one or more aeronautics or space vehicles (and necessary ground support) in order to accomplish a scientific or technical objective. R&D projects are subject to the decision processes in 14CFR1216.304.

Research and Program Management (R&PM). Those activities directed towards the general support of the NASA institution charged with the conduct of the aeronautics and space program. R&PM funds are expended for the NASA civil service work force (both for performing in-house R&D and for planning, managing, and supporting contractor and grantee R&D), and for other general supporting functions.

Resource Conservation and Recovery Act (RCRA). Establishes guidelines and standards for solid and non-hazardous waste generation, transportation, treatment, storage, and disposal. Requires management of underground storage tanks (UST's) and cleanup of hydrocarbon contamination.

Establishes a national policy to minimize the generation of hazardous waste and the land disposal of hazardous waste by encouraging process substitution, materials recovery, properly conducted recycling and reuse, and treatment. Mandates that hazardous waste generators and treatment, storage, and disposal facilities have a hazardous waste minimization program in place.

Toxic Substances Control Act (TSCA) of 1976. 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 PCB's.