COMPLIANCE IS MANDATORY

John C. Stennis Space Center
Environmental Management System
Procedural Requirements
## Document History Log

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<tr>
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<th>Change Date</th>
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<tbody>
<tr>
<td>SPR 8500.1 Basic</td>
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<tr>
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<td>12/30/2004</td>
<td>C. Kennedy x8-1445</td>
<td>Formatting and grammatical changes made throughout the document. Sections 1.2, 2.6, 2.7, 2.14 and 2.15 have been modified. These modifications reflect changes in audit and senior management review schedules. TTSC was changed to ITS and TOC. Changes were made to sections 2.10 and 2.14 to clearly describe CAR, PCAR and compliance assessments.</td>
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<td>B</td>
<td>01/31/2006</td>
<td>C. Kennedy X8-1445</td>
<td>This document has been modified to align with the newly released headquarters’ document NPR 8553.1 and the new ISO standard 14001-2004. The environmental policy has been modified to include statements on sustainability. Analytical Measurement and Test Equipment for calibration was reinserted into Section 2.7. Reworded and added the electronic record for external communications with regulators and other interested parties. Added information on the new Training and Legal section of the Risk Matrix database. Updated references for Internal Audits from SCWI-8500-0021-ENV to SCWI-1280-0001; and Corrective Action, Preventive Action and Improvement from SCWI-8500-0022-ENV to SCWI-8730-0002.</td>
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<td>09/10/2007</td>
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<td>Revised Section 2.17 on reporting to senior management. Added responsibilities for NASA employees and NASA contractor employees. Updated references. Changed document for training requirements from</td>
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SUBJECT: Environmental Management System Procedural Requirements

EMPP to Risk Matrix and operational desk guides. Removed EMS from many section headings. Changed Section 2.3 from setting O & T for other goals to other aspects deemed to contribute significantly. Moved Policy Statement to Section 1 and moved risk matrix development guidance from Section 2 to Appendix D.

This revision was undertaken to align with the new NPR 8553.1 with effective date of September 22, 2009 (references to certain sections changed in Chapter 2 of this SPR). Changed Center Director’s name. Changed training reference. Changed calibration control reference. Removed reference to National Environmental Performance Track Program. Deleted Appendix B, C, and D.

Revised Section 2.10 Training to satisfy an internal audit preventative corrective action.

Replaced two cancelled documents with a new document SCWI 8710-0004.

Administrative. Changed the document name for SCWI-8710-0004 and replaced SCWI-8730-0002 with SCWI-1280-0002.

Original History

- **Basic SPG 8500.1**
  - 03/22/01 RA02/R.Magee Ext. 7384 Initial Release
- **SPG 8500.1 A**
  - 07/19/02 RA02/J.Gordon Ext. 8-1416

General writing, grammatical and format corrections throughout. Added SSC/NASA organizations and offices, ODIN and SS contracts to applicable support contractors participating in the EMS. Removed from references: SSLP-1440-0001, SSLP 8730-0004, SSLP-1280-0004, modified SSLP document numbers to remove the SLP number. Added to references: SPLN-8500-0001, SSC Environmental Functional Review Checklist. Updated doc number for the Integrated Contingency Plan. In section 1.2 added responsibilities to the SSC Environmental Officer (added c, d, e, f). In section 1.3 removed responsibilities from SSC EMS core team (e and f). In section 2.2, (i) was rewritten.
and (j) was added. In section 2.3 responsibility for documenting EMPP objectives and targets was changed from the core team to the EO. Paragraph was removed which had said that objectives and targets could be established only to maintain compliance and record rationale for objectives and targets. In section 2.6, responsibility was changed for updating and reviewing operational controls to the Environmental Officer. Also corrected documentation reference. Section 2.10, Corrective/ Preventive Action and Improvement completely rewritten. Sections 2.13, 2.14, 2.15 and 2.16 were extensively revised. Sections 2.15.1, 2.15.2, 2.15.3 and 3.0 were deleted. Sections 4.0 and 5.0 were changed to Appendices H and I respectively. In Appendix B, the column containing the identification number was removed. In Appendix G, divided general Lead Auditor term into Team Lead Auditor and EMS Lead Auditor, and requirements and responsibilities were added and revised. Info. falling under Other Criteria was also heavily revised.
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PREFACE

P.1 PURPOSE

The purpose of this directive is to provide specific requirements for maintaining an Environmental Management System (EMS) for the John C. Stennis Space Center (SSC) in accordance with the ISO 14001, Environmental Management Systems – Requirements with Guidance for Use and NPD 8500.1, NASA Environmental Management.

P.2 APPLICABILITY

a. This directive is applicable to NASA SSC personnel and activities.

b. This directive is applicable to SSC contractors to the extent specified in their respective contractual documents.

c. This directive covers all activities, products and services that fall under the control or influence of NASA/SSC management including, but not limited to, construction of facilities, facility maintenance and operations, procurement, research and development, testing, assembly, equipment maintenance, programs, mission deployment, and waste disposal.

d. This EMS directive does not include programmatic activity by other government agencies and commercial operations that are located at SSC.

P.3 AUTHORITY

NPD 8500.1, NASA Environmental Management.

P.4 APPLICABLE DOCUMENTS

Referenced documents are assumed to be the latest revision unless otherwise specified.

a. NPR 1441.1, NASA Records Retention Schedules.

b. NPD 8500.1, NASA Environmental Management.

c. NPR 8553.1, NASA Environmental Management System.

d. SPR 1400.1, Document Preparation, Numbering, and Management.

e. SPR 1440.1, Records Management Program Requirements.

f. SPR 8730.4, Metrology and Calibration Control Program.
g. SPLN-1040-0006, Emergency Management Plan.

h. SCWI-8710-0004, SSC Internal and External Audit Process.

i. SCWI-8500-0020-ENV, Environmental Integrated Contingency Plan.

j. SCWI-1280-0002, SSC Corrective Action Request Process.


P.5 MEASUREMENT/VERIFICATION

Compliance with the requirements contained in this document will be verified through audits, observations, and self-assessments.

P.6 CANCELLATION

SPR 8500.1, Rev D-2.

Signature on file

Patrick E. Scheuermann
Director

DISTRIBUTION

Approved for public release via NODIS; distribution is unlimited.
CHAPTER 1. ENVIRONMENTAL POLICY AND EMS RESPONSIBILITIES

1.1 Environmental Policy

a. It is the policy of SSC to conduct its mission, services, and activities in a manner that maintains environmental stewardship of assets and fully discharges its environmental responsibilities. SSC has implemented this policy through an EMS based on four foundation principles:

1. **Regulatory Compliance** with all applicable federal, state, and local environmental laws and regulations and other requirements;

2. **Conservation** of our resources so that we meet our current and future mission in a sustainable manner,

3. **Pollution Prevention** to cost-effectively avoid the creation of pollution; and

4. **Continual Improvement** of processes to enhance environmental protection.

b. This policy serves as the framework for setting and reviewing environmental objectives and targets.

c. The SSC EMS is focused on significant environmental parameters including but not limited to:

**Conservation and Sustainability:** We will diminish our consumption of natural resources through cost-effective use of recycled and reused materials, affirmative procurement, and conservation of energy and water. We manage our natural resources in a sustainable manner for current and future generations. We design and operate our facilities with view on total life cycle costs.

**Restoration:** We will strive to protect and restore the natural and cultural resources located on SSC property including habitats, wetlands, and other sensitive ecological resources in accordance with applicable regulations and local ordinances.

**Emissions, Effluents, and Waste:** We will work to diminish our emissions effluents, and waste throughout the lifecycle of our projects and operations by employing cost-effective operational controls, by selecting appropriate materials and by implementing corrective and preventive actions for legal issues whenever necessary.

**Technology Transfer:** We will promote the development and transfer of environmentally related technology that may have broad applicability for environmental protection and restoration throughout society.
d. We will communicate this policy to all employees, make it available to the public, and maintain procedures to receive and respond to inquiries from external interested parties. We will also alert potentially affected individuals and authorities of any environmental incidents in a timely and effective manner.

e. Senior Management at SSC believes that how we care for the environment today affects both current and future generations. We accept responsibility for doing our best to maintain awareness and to minimize adverse environmental impacts from our operations.

1.2 Responsibilities

The responsibilities for the implementation and maintenance of the EMS are addressed below.

1.2.1 SSC Director

The SSC Director is responsible for appointing the SSC NASA Environmental Officer (EO) as the Management Representative to oversee the continual operation of the EMS and the members of the EMS Core Team.

1.2.2 Senior Management

Senior Management is responsible for:

a. Participating in the EMS program by providing commitment to its continuing operation; and

b. Conducting reviews at least once a year to ensure the suitability, adequacy and effectiveness of the EMS.

1.2.3 SSC Environmental Officer

The SSC Environmental Officer (EO) serves as the Management Representative to direct the EMS and Core Team activities. Specifically, the EO is responsible for:

a. Identifying the need for and documenting procedures for operational controls that limit adverse impacts associated with environmental aspects and which are needed to manage NASA’s environmental policy or compliance activities;

b. Reporting annually to Senior Management on the state of the EMS or more frequently as preferred;

c. Overseeing communications with external interested parties;
d. Tracking the investigation and correction (as needed) for all reported hazards/emergencies;

e. Identifying requirements for, and participating in the SSC Corrective Action, Preventive Action and Improvement process, in accordance with SCWI-1280-0002;

f. Appointing the EMS Audit Manager;

g. Identifying EMS internal audit requirements to the EMS Audit Manager in accordance with SCWI-1280-0004; and

h. Providing support to NASA Headquarters during Environmental Functional Reviews.

1.2.4 SSC EMS Core Team

The SSC EMS Core Team assists in managing the EMS. The Core Team membership includes representatives from NASA Environmental Management, NASA Engineering and Science Directorate and the NASA contractors responsible for operational activities. Other NASA Directorates or NASA contractors may be consulted on an as needed basis. The Core team membership is limited to no more than 12 members at any one time. The EMS Core Team is responsible for:

a. Identifying high-priority environmental impacts;

b. Establishing environmental objectives and targets for SSC high-priority impacts that are consistent with the NASA environmental policy;

c. Assisting the Environmental Management Program Plan (EMPP) Managers to develop performance indicators for environmental objectives and targets; and

d. Reviewing and updating operational controls associated with high-priority environmental impacts on an as needed basis.

1.2.5 Environmental Management Program Plan Manager(s)

The EMPP Manager(s) is responsible for:

a. Establishing performance baselines for environmental objectives and targets with the assistance of appropriate SSC environmental program personnel;

b. Tracking, monitoring, and measuring the key characteristics of operations associated with the environmental objectives and targets and reporting this information to the EO as requested; and
c. Reviewing and maintaining the EMPP document to ensure it remains current and in conformance with the requirements of SPR 1400.1.

1.2.6 SSC Audit Manager

The Audit Manager is responsible for organizing EMS audits according to SCWI-18710-0004, *SSC Internal and External Audit Process*.

1.2.7 NASA Employees and NASA Contractor Employees

NASA employees and NASA contractor employees are responsible for being knowledgeable of the NASA Environmental Policy, understanding the environmental aspects related to their jobs, and working to minimize their impact on the environment.
CHAPTER 2. PROCEDURES

2.1 High-Priority Environmental Aspect Identification

a. The SSC EMS Core Team shall document information to verify and validate the assignment of high-priority environmental aspects in accordance with NPR 8553.1, Section 3.1. The environmental aspects shall be managed using a Risk Matrix formatted in a manner provided in NPR 8553.1, Table D-1.

b. The EO and the EMS Core Team shall meet on an annual basis to review the risk matrix and recommend additions or alterations based on changes in mission, activities, products, processes, or services.

2.2 Environmental Objectives and Targets

a. The EMS Core Team, with the guidance of the EO, shall establish environmental objectives and targets that are technically feasible and economically reasonable for each high-priority environmental aspect and for any other aspect deemed to contribute significantly to environmental performance. The requirements for selection of objectives and targets are provided in NPR 8553.1, Section 3.3.

b. The EO shall document in an EMPP the objectives and targets for the high-priority aspects and communicate the information to all affected parties.

c. Any updates or changes to objectives and targets resulting from the annual management review and internal EMS audits shall be incorporated into the EMPPs and communicated by the EO to all affected parties.

2.3 Environmental Management Program Plan

An EMPP shall be prepared that specifies the basic requirements for designating responsibilities and establishing means and timeframes for achieving objectives and targets. Requirements for programs are provided in NPR 8553.1, Section 3.3

2.4 Legal and Other Requirements

a. The Facility Operations Service contractor shall be contractually tasked to review federal and state regulations through appropriate web sites and subscription e-mail services to ensure that representatives of NASA Environmental Management are aware of new or modified requirements.

b. NASA Environmental Management shall track and review any other requirements applicable to SSC operations and activities such as NASA Headquarters directives and Executive Orders.
c. Any rules or regulations that are identified as potentially relevant to SSC operations shall be brought to the attention of the EO.

d. The EO shall communicate this information to those individuals who are primarily responsible for meeting the requirements in the affected area.

e. Legal and other requirements shall be documented for all aspects in the Risk Matrix.

### 2.5 Operational Controls

a. The EO shall ensure that operational controls are available for each high-priority environmental aspect and for aspects that need controls to prevent them from becoming high priority.

b. Operational controls may be technological, operational or procedural and shall be documented and made available to employees via the SSC Technical Documentation System.

c. The procedures shall be reviewed and updated as necessary by NASA Environmental Management.

d. Procedures shall be prepared and kept current per SPR 1400.1, Document Preparation, Numbering, and Management.

### 2.6 Calibration, Monitoring and Measuring Equipment

Equipment used for sample analysis or performance monitoring shall be calibrated in accordance with one of the following:

a. Inspection, Measurement and Test Equipment (IM&TE) is calibrated in accordance with SPR 8730.4, Metrology and Calibration Control Program.

b. Analytical Measurement and Test Equipment (AM&TE) is calibrated using certified reference materials or consensus standards supported by a test procedure. Traceability to the certified reference material or consensus standard shall be documented by the analytical laboratory for each analysis or performance monitoring process. AM&TE is not included in the Stennis metrology management system.

### 2.7 Document Control

All EMS documents shall be created, revised, and cancelled according to SPR 1400.1, Document Preparation, Numbering, and Management.
2.8 Records

a. EMS records shall be managed in accordance with relevant federal and state regulations, NPR 1441.1, NASA Records Retention Schedules, and SPR 1440.1, Records Management Program Requirements.

b. Logs shall be controlled in accordance with specific work instructions or the appropriate regulatory requirement.

2.9 Corrective/Preventative Action and Improvement

a. Corrective action is used to effectively handle non-compliance and non-conformance issues by addressing and identifying the root cause of the discrepancy. The primary objective of preventive action is to minimize impending, emerging, or potential problems or issues that may increase program or management risk. While corrective action starts with a known fault that must be fixed, preventive action resolves a potential problem or concern that must be eliminated to avoid or prevent a fault.

b. Corrective/preventative actions and improvements that are identified during internal or external audits shall be managed according to SCWI-1280-0002, Corrective Action Request Process.

c. Some corrective/preventative actions and improvements are also identified by regular SSC communication processes, NASA Headquarters Environmental Functional Reviews, state and federal environmental inspections and other similar means. In these situations the need for formal corrective or preventative action, according to SCWI-1280-0002, shall be based on the magnitude of the issue as determined by NASA Environmental Management.

2.10 Training

a. Training requirements to provide the needed competencies to execute the requirements of the EMS shall be determined by employee supervisors.

b. Employee awareness of EMS requirements shall be ensured by new employee EMS awareness training and EMS refresher training. The EMS refresher training is available through SATERN and is required for NASA civil servants every three years.

c. Competency training requirements shall include professional certification necessary to be in compliance with the law.
2.11 Emergency Preparedness


2.12 Tracking Environmental Performance

a. As part of establishing EMPP documents for environmental impacts, the EMS Core Team shall assist the EMPP Manager in determining performance indicators to show progress toward meeting EMPP objectives and targets.

b. Units of measure and types of measurement found in environmental regulations for a particular high-priority environmental aspect shall be used in establishing these indicators and in determining their baselines.

c. The EMPP Manager shall record progress toward meeting objectives and targets using graphs, charts, or reports.

d. The EO shall establish data requirements for submittal of records that track, monitor and measure key environmental parameters associated with SSC operations.

2.13 Compliance Assessments

a. NASA SSC Environmental Management and NASA Headquarters Environmental Management shall conduct assessments on all NASA and NASA contractor operations to assure that SSC activities comply with federal and state regulations.

b. NASA SSC Environmental Management shall notify senior management and NASA Headquarters if any issues regarding non-compliance are discovered during assessments.

c. The EO shall initiate corrective action and issue a cease and desist order on any non-compliant activities.

d. Compliance assessments of NASA and NASA contractors shall be conducted at least once per year, and may be conducted in conjunction with internal audits.

e. Problems identified during assessments shall be assigned a preventative action or a corrective action depending on the severity of the assessment observations.

f. Compliance problems that are discovered by observations made at times other than during annual assessments shall be addressed immediately and assigned a preventative action or a corrective action depending on the magnitude of the problem.
g. NASA and its contractors shall be scored during compliance assessments on environmental compliance issues specific for each process. The score is based on the percentage of criteria in compliance versus the total number of compliance criteria identified for each process.

2.14 Internal EMS Audits

Internal EMS audits of NASA and NASA contractors shall be conducted in accordance with SCWI-8710-0004, *SSC Internal and External Audit Process*.

2.15 Internal Communications

a. Internal communications to NASA and NASA contractors with respect to the EMS shall include the environmental policy, objectives and targets, roles and responsibilities, performance tracking and emergency response.

b. Mechanisms that shall be used for internal communication are the environmental website, newsletters and emails, staff meetings, bulletin boards, posters and flyers.

c. All SSC personnel shall communicate any environmental concerns directly to their manager, their organization’s environmental lead, directly to the EO, via a corrective action form or through comments to the SSC “Close Call” System.

d. Appropriate responses shall be provided to all environmental concerns expressed by personnel.

e. All employees shall report environmental hazards or emergencies, including spills and fires, immediately upon discovery by dialing 911 in accordance with the SCWI-8500-0020-ENV, *SSC Environmental Integrated Contingency Plan*. 

RELEASED - Printed documents may be obsolete; validate prior to use.
2.16 External Communications

a. The NASA Senior Management Council has directed NASA Environmental Management to provide the public with information on the EMS significant aspects. These aspects, the EMS objectives and targets, and environmental performance indicators shall be made available to the public via the Environmental Assurance web site.

b. NASA Environmental Management, through the procurement offices of NASA and NASA contractors, shall inform SSC suppliers or other contractors of its EMS and of NASA’s desire that they conduct their business in an environmentally sound manner applying applicable procedures and requirements to mitigate, minimize, or otherwise control environmental impacts.

c. Outreach is also accomplished for National Environmental Policy Act requirements such as environmental assessments and environmental impact statements by posting documents on the web site and providing them to local libraries for public review. If necessary, public scoping or comment sessions shall be conducted locally.

d. The requirements of the Comprehensive Environmental Response, Compensation, and Liability Act shall be fulfilled by offering poster sessions and fact sheets to the public and by providing information via the web site.

e. The NASA Environmental Management staff shall keep records of incoming and outgoing phone communications and emails, regarding environmental compliance issues, with the EPA, the U.S. Army Corps of Engineers, the Mississippi Department of Environmental Quality, the Mississippi Department of Health and other federal and state agencies.

f. Records of communications shall be maintained electronically on the Center Operations Directorate network drive and managed in accordance with NPR 1441.1, NASA Records Retention Schedules.

g. Public inquiries regarding environmental issues shall be directed to the SSC Public Affairs Officer. This includes emails, faxes and telephone calls.

2.17 Management Review

a. Senior management shall review the EMS at least each calendar year to ensure its continuing suitability, adequacy, and effectiveness.

b. As part of the review the EO shall brief senior management on:

- results of internal audits and evaluation of compliance with legal and other requirements
- communication from external parties, including complaints
- environmental performance and the extent to which objectives and targets have been met
status of corrective and preventive actions
follow-up actions from previous management reviews
changing circumstances, including developments in legal and other requirements
recommendations for improvement

c. Upon review of the information provided by the EO, senior management shall provide guidance and direction to the EO on possible changes to the EMS to ensure its continual improvement.
Appendix A – Acronyms

AM&TE  Analytical Measurement and Test Equipment
EMPP  Environmental Management Program Plan
EMS  Environmental Management System
EPA  Environmental Protection Agency
EO  Environmental Officer
IM&TE  Inspection, Measuring and Test Equipment
ISO  International Organization of Standardization
NASA  National Aeronautics and Space Administration
NODIS  NASA Online Directives Information System
NPD  NASA Policy Directive
NPR  NASA Procedural Requirements
SCWI  Stennis Common Work Instruction
SPLN  Stennis Plan
SPR  Stennis Procedural Requirements
SSC  Stennis Space Center