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Space Administration

**John C. Stennis Space Center**  
Stennis Space Center, MS  
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**SPR 8715.1 Rev C**  
**October 2010**

## **COMPLIANCE IS MANDATORY**

### **John C. Stennis Space Center Safety and Health Program Requirements**

Stennis Procedural Requirements	SPR 8715.1	C
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## PREFACE

### P.1 PURPOSE

- a. This National Aeronautics and Space Administration (NASA) Stennis Space Center (SSC) Procedural Requirement (SPR) directive sets forth the health and safety requirements for all NASA operations and work at NASA SSC.
- b. This document establishes the Voluntary Protection Program (VPP) Safety and Health Management program at NASA SSC. For specific information regarding procedures that provide further detail of program requirements, refer to SSP-8715-0001 SSC Safety and Health Handbook. If a work instruction for a specific SSC safety and health program has been developed, the work instruction will be identified in the SSC Safety and Health Handbook.

### P.2 APPLICABILITY

- a. This SPR is applicable to all NASA SSC personnel.
- b. This SPR is applicable to NASA SSC contractors and NASA SSC construction personnel to the extent specified by their respective contractual documents. Applicability is further defined within sections of this document.
- c. SSC tenants are expected to implement a health and safety program that appropriately covers their respective operations. This SPR is applicable to SSC tenants as specified in host tenant agreement and Space Act Agreements.
- c. Mandatory requirements in this SPR are identified by the word *shall*. Use of the word *may* indicates permissiveness, and the use of the word *should* indicates a practice that is expected to be followed unless inappropriate for a particular circumstance. Material not identified by the use of the word *shall* is advisory or informative in nature only (e.g., notes, introductory or explanatory text, etc.).

### P.3 AUTHORITY

- a. 29 CFR Part 1960, Basic Program Elements for Federal Employee Occupational Safety and Health.
- b. 29 CFR Part 1910, Occupational Safety and Health standards.
- c. 29 CFR 1926, Safety and Health Regulations for Construction.

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- d. NPD 1800.2, NASA Occupational Health Program.
- e. NPD 1810.2, NASA Occupational Medicine Program.
- f. NPD 1820.1, NASA Environmental Health Program.
- g. NPD 8700.1, NASA Policy for Safety and Mission Success.
- h. NPD 8710.2, NASA Safety and Health Program Policy.
- i. NPR 8000.4, Risk Management Procedural Requirements.
- j. NPR 1800.1, NASA Occupational Health Program Procedures.
- k. NPR 8621.1, NASA Procedural Requirements for Mishap and Close Call Reporting, Investigating, and Recordkeeping.
- l. NPD 8710.1, Emergency Preparedness Program.
- m. NPR 8715.2, NASA Emergency Preparedness Plan Procedural Requirements.
- n. NPR 8715.3, NASA General Safety Program Requirements.
- o. SPD 8715.4, NASA SSC Safety and Health Policy.

#### **P.4 APPLICABLE DOCUMENTS**

The following references are applicable to the requirements defined in this directive. All references are assumed to be the latest version unless otherwise specified.

- a. 29 CFR 1960, Basic Program Elements for Federal Employee Occupational Safety and Health.
- b. 29 CFR 1977, Discrimination Against Employees Exercising Rights Under the Occupational Safety and Health Act of 1970.
- c. 49 CFR 571, Federal Motor Vehicle Safety Standards.
- d. EO 12196, Occupational Safety and Health Programs for Federal Employees.
- e. NPD 5101.32, Procurement.

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- f. NPR 1441.1, NASA Records Retention Schedules.
- g. NPR 8621.1, NASA Procedural Requirements for Mishap Reporting, Investigating and Recordkeeping.
- h. NPR 8715.3, NASA General Safety Program Requirements.
- i. NPR 3752.1, Disciplinary and Adverse Actions.
- j. NPR 8820.2, Facility Project Requirements.
- k. SPR 1440.1, Records Management Program Requirements.
- l. SSP-8715-0001, NASA SSC Safety and Health Handbook.
- m. SPD 8715.1, NASA SSC Operational Readiness Program.
- n. SPR 1600.1, SSC Security Handbook.
- o. SPR 7120.1, Risk Management.
- p. SPR 8715.2, Operational Readiness Program Procedural Requirements.
- q. SCWI-3410-0003, Training/Certification Plan and Schedule Report.
- r. SPLN-1040-0006, SSC Emergency Management Plan.
- s. CSP 03-01-003, Voluntary Protection Programs (VPP): Policies and Procedures.
- t. A Strategy for Assessing and Managing Occupational Exposures, American Industrial Hygiene Association.
- u. Guidelines to Occupational Exposure Values, American Conference of Governmental Industrial Hygienists (ACGIH).
- v. Documentation of the Threshold Limit Values and Biological Exposure Indices, ACGIH.
- w. Industrial Ventilation: A Manual of Recommended Practice, ACGIH.

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## P.5 MEASUREMENT/VERIFICATION

Compliance with requirements cited in this document will be measured through achievement of annual safety and health goals. NASA and its on-site prime contractors shall report the status of safety and health goals on an annual basis to the NASA SSC Safety and Mission Assurance (SMA) Manager.

NASA and its on-site prime contractors complete an annual safety and health review. The NASA SSC safety and health review will include construction safety. The reviews include the implementation status of all applicable Occupational Safety and Health Administration (OSHA) regulations, VPP practices, and injury/illness performance requirements.

Monthly status reports of injury/illness statistics and audit recommendation progress are made by NASA and its prime contractors at the Center Director Safety Management Review meetings.

## P.6 CANCELLATION

SPR 8715.1, Revision C dated June 2010

*Signature on file*

Patrick E. Scheuermann  
Director

## DISTRIBUTION

Approved for public release via NODIS and TechDoc; distribution is unlimited.

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## CHAPTER 1. INTRODUCTION

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### 1.1 General Requirement

This document has been prepared to be consistent and comply with federal statutory codes and regulations, executive orders, and NASA directives and standards. The requirements listed herein supplement those requirements. Processes specific to the requirements of NASA SSC for the safety of its particular operations and the health of personnel are defined in SSP-8715-0001, SSC Safety and Health Handbook. If a work instruction for a specific SSC safety and health program has been developed, the work instruction will be identified in the SSC Safety and Health Handbook.

### 1.2 Scope

- a. This document covers administrative Safety and Health Program requirements, VPP Management System Requirements as well as industrial safety and health operating procedures and processes.
- b. This SPR provides information on the basic roles and responsibilities for implementing and conducting the requirements of the NASA SSC Safety and Health Program in general.
- c. Chapters 2 through 6, respectively, provide the specific requirements for:
  - Management Commitment
  - Employee Involvement
  - Worksite Analysis
  - Hazard Prevention and Control
  - Training
- d. Each chapter contains the specific individual requirements for the given subject area. SSP-8715-0001, SSC Safety and Health Handbook and specific NASA SSC Work Instructions contain detailed information such as figures, illustrations, tables, charts, etc. that pertain to specific health and safety procedures. Further statements of applicability are provided for each subject area of the individual work instructions.
- e. A complete list of acronyms and abbreviations is provided in Appendix A.

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## **CHAPTER 2. MANAGEMENT COMMITMENT AND RESPONSIBILITIES**

### **2.1 Commitment**

Management Commitment is defined in SPD 8715.4, SSC Safety and Health Policy. This document provides an overview of how this commitment shall be carried forward and what is necessary to meet the requirements.

#### **2.1.1 Tenets of Safety and Health**

NASA SSC shall abide by the following safety and health philosophy:

- a. Safety is everyone's responsibility.
- b. All mishaps are preventable.
- c. Risks must be identified and managed; hazards must be identified and corrected.
- d. Management will maintain a "Safety Always" attitude.
- e. Effective Safety and Health Training is paramount.
- f. Employment depends upon working safely, following procedures, abiding by rules, knowing safety requirements, and watching out for others.
- g. An effective safety and health program will reduce risks, prevents mishaps, add value, and protects us.
- h. The NASA SSC Safety and Health Program must meet or exceed NASA, federal, and OSHA VPP requirements. NASA SSC is committed to OSHA VPP and shall continue to improve the safety and health program beyond minimum requirements.

#### **2.1.2 Program Elements**

NASA SSC's Safety and Health Program shall be organized around the following elements that are supported by management:

- Management Leadership.
- Employee Involvement.
- Worksite Analysis.
- Hazard Prevention and Control.
- Safety and Health Training.

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## 2.2 Visible Top Management Organization

- a. The NASA SSC Center Director along with the Deputy and Associate Directors are responsible for the overall safety and health of NASA SSC. Directors and Managers from the following Directorates and Offices report directly to the Center Director:
  1. Engineering and Test Directorate
  2. Project Directorate
  3. Rocket Propulsion Test Program Office
  4. Center Operations Directorate
  5. Office of the Chief Financial Officer
  6. Office of Procurement
  7. Office of Chief Counsel
  8. Office of External Affairs and Education
  9. Office of Human Capital
  10. Office of Safety and Mission Assurance
- b. The above Directorates and Offices are responsible to various degrees for the oversight of NASA SSC, its contractors and construction contractors. Safety responsibilities are delegated to each of the Directorates and Offices as applicable.
- c. Within the Office of Procurement, Contracting Officers (CO) are the only personnel with the authority to obligate the government. Contracting Officer Technical Representatives (COTR) from the appropriate requiring directorate or office provide technical support for the CO and provide surveillance during the contract performance.
- d. The SMA Office is given authority by the Center Director and is responsible for guiding the full implementation of the Safety and Health Program and monitoring and evaluating the achievement of safety goals.
- e. SMA personnel work through the CO and the COTR, and they interact directly with contractors, construction contractors, and tenants.
- f. The Center Operations Directorate is given authority by the Center Director and is responsible for the Industrial Hygiene, Environmental, Occupational Health, Fire Protection/Prevention and Emergency Response Programs. Center Operations personnel work through the CO and COTR and they interact directly with contractors, construction contractors and tenants.

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- g. Directorates and Offices are staffed with Deputy Directors, Lead positions, professional and technical support, and administrative personnel. The organizational structures of the contractors are unique to their organization.
- h. Operations Managers, Line and technical managers may be assigned the responsibility for facility management of programmatic facilities including the establishment of safety and health programs within the facility.
- i. Facility Managers serve as the point of contact and coordinators for all activities that affect the building from both internal and external sources, and are responsible for the building's emergency preparedness program. Facility Managers are responsible for compiling and reporting safety, health and facility management issues and ensuring identified risks are mitigated.

## 2.3 Responsibilities and Authority

### 2.3.1 Center Director

The Center Director shall:

- a. Assure compliance with Center Director Responsibilities in NPR 8715.3.
- b. Lead the effort to maintain OSHA VPP standards.
- c. Chair the Safety Management Review meetings.
- d. Approve the type and frequency of safety and health metrics that will be utilized to drive improvement.
- e. Be knowledgeable in employee rights and responsibilities from this document and federal laws (such as Executive Order 12196, 29 CFR 1960, Basic Program Elements for Federal Employee Occupational Safety and Health and 29 CFR 1977, Discrimination Against Employees Exercising Rights Under the Williams-Steiger Occupational Safety and Health Act of 1970).

### 2.3.2 Deputy Director and Associate Director

The Deputy and Associate Directors shall:

- a. Assure compliance with Center Director Responsibilities in NPR 8715.3.
- b. Support the Center Director in maintaining OSHA VPP Star standards.

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- c. Participate in the Safety Management Review Meetings as assigned.
- d. Assure provision of resources, guidance, and direction for implementing the NASA SSC Safety and Health Program.
- e. Review and provide feedback on the type and frequency of safety and health metrics that will be utilized to drive improvement.
- f. Ensure NASA SSC has independent safety and health organizations to assist in implementing NASA SSC safety and health programs. These organizations must include safety and health officials at appropriate levels and adequate personnel to carry out NASA SSC safety and health programs.
- g. Ensure specialized expertise from other sources is available as necessary.
- h. Provide adequate funding and oversight to all NASA SSC organizations to accomplish effective safety and health programs including training.
- i. Support and monitor the successful implementation and management of the NASA SSC contractor and construction contractor safety program.
- j. Ensure all visitors either directly under their oversight or escorted, have been briefed on the hazards associated with, and are aware of the requirements to be followed in the areas they visit.
- k. Verify NASA SSC has requirements and procedures to establish and conduct effective safety and health programs.
- l. Require annual safety reviews and the establishment of safety goals to promote continuous improvement.
- m. Review and approve priorities for correcting workplace hazards.
- n. Participate in Safety and Health Program activities such as emergency drills, safety training and workplace inspections.
- o. Be knowledgeable in employee rights and responsibilities from this document and federal laws (such as Executive Order 12196, 29 CFR 1960, Basic Program Elements for Federal Employee Occupational Safety and Health , and 29 CFR 1977, Discrimination Against Employees Exercising Rights Under the Williams-Steiger Occupational Safety and Health Act of 1970).

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### 2.3.3 Directors, Deputy Directors, Managers and Deputy Managers

Directors, Deputy Directors, Managers and Deputy Managers shall:

- a. Assure compliance with applicable sections of NPR 8715.3.
- b. Actively promote VPP among their staff and support employee safety committees through periodic attendance at meetings and assignment of personnel to participate.
- c. Participate in safety and health activities.
- d. Complete required safety and health training.
- e. Ensure required workplace safety inspections are being completed.
- f. Participate in the Safety Management Review meetings.
- g. Lead by example, ensure safety is the first subject covered in department meetings and personally adhere to all safety rules, regulations, and practices.
- h. Maintain safety awareness and conduct special meetings to cover critical information.
- i. Provide safety metrics as required to the Center, Deputy and Associate Directors.
- j. Enforce NASA SSC Safety and Health Program rules and requirements.
- k. Monitor staff performance to ensure compliance with their responsibilities regarding rules, regulations and practices.
- l. Assure safety performance is an integral part of the annual performance review for all department personnel.
- m. Support and monitor the status of the NASA SSC contractor and construction contractor safety program.
- n. Ensure all visitors are escorted, and have been briefed on the hazards associated with, and are aware of the requirements to be followed in the areas they visit.
- o. Ensure all staff members are knowledgeable of their roles and responsibilities in the event of an emergency, and their duties to participate in emergency drills and exercises.

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- p. Ensure all employees under their responsibility are current with applicable safety training.
- q. Ensure all employees who work in Process Safety Management (PSM)-covered areas receive the appropriate PSM overview training.
- r. If assigned, perform designated duties in the Emergency Operations Center (EOC) when the EOC is activated or required to meet for emergency drill or exercise purposes.
- s. Be knowledgeable in employee rights and responsibilities from this document and federal laws (such as Executive Order 12196, 29 CFR 1960, Basic Program Elements for Federal Employee Occupational Safety and Health , and 29 CFR 1977, Discrimination Against Employees Exercising Rights Under the Williams-Steiger Occupational Safety and Health Act of 1970).

#### **2.3.4 Chiefs, Deputy Chiefs and Branch Chiefs**

Chiefs and Deputy Chiefs shall:

- a. Assure compliance with applicable sections of NPR 8715.3.
- b. Serve as the Safety and VPP Champion for their areas of responsibility.
- c. Participate in safety and health activities.
- d. Complete required safety and health training.
- e. Verify the workplace safety inspection process is working and hazards are being corrected in areas of responsibly.
- f. Cover safety first in weekly or monthly department meetings.
- g. Maintain safety awareness and conduct special meetings to cover critical information.
- h. Enforce and reinforce NASA SSC safety and health rules and requirements.
- i. Provide leadership to achieve safety metric goals and other safety performance objectives.
- j. Manage staff performance to ensure compliance with responsibilities regarding rules, regulations and practices and lead by example.
- k. Verify safety performance is an integral part of the annual performance review for all department personnel.

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- l. Support and manage the applicable elements of the NASA SSC contractor and construction contractor safety program.
- m. Ensure visitors are escorted, and aware of the hazards associated with, and requirements to be followed in the areas they visit.
- n. Ensure all staff members are knowledgeable of their roles and responsibilities in the event of an emergency, and their duties to participate in emergency drills and exercises.
- o. Verify all employees under their responsibility are current with applicable safety training.
- p. Verify employees who work in PSM-covered areas receive the appropriate PSM overview training.
- q. Demonstrate commitment and support for employee involvement programs.
- r. Verify supervisors are communicating to employees their rights and responsibilities from this document and federal laws (such as Executive Order 12196, 29 CFR 1960, Basic Program Elements for Federal Employee Occupational Safety and Health 29 CFR 1977, Discrimination Against Employees Exercising Rights Under the Williams-Steiger Occupational Safety and Health Act of 1970).

### 2.3.5 Leads

Leads shall:

- a. Assure compliance with applicable sections of NPR 8715.3.
- b. Facilitate Safety and VPP responsibilities to ensure continuous improvement is maintained.
- c. Lead safety and health activities as required.
- d. Complete required safety and health training.
- e. Participate in workplace safety inspections as applicable.
- f. Cover safety first in department meetings.
- g. Hold special meetings as required to cover critical information or to maintain safety awareness.

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- h. Initiate the enforcement of NASA SSC Safety and Health rules and requirements.
- i. Work to achieve safety metric goals and other safety performance objectives.
- j. Guide and provide oversight of staff to ensure compliance to their responsibilities regarding rules, regulations and practices.
- k. Verify safety performance is an integral part of the annual performance review for all department personnel.
- l. Lead by example by personally adhering to all safety rules, regulations, and practices.
- m. Perform all applicable duties and responsibilities in support of the NASA SSC contractor and construction contractor safety program.
- n. Ensure visitors are escorted and aware of the hazards and requirements to be followed in the areas they visit.
- o. Ensure all staff members understand their roles and responsibilities in the event of an emergency, and participate in emergency drills and exercises.
- p. Verify all employees under their responsibility are current with applicable safety training.
- q. Verify employees who work in PSM-covered areas receive the appropriate PSM overview training.
- r. Assist in the development of Job Hazard and Industrial Hygiene Analyses.
- s. Demonstrate commitment and support for employee involvement programs.
- t. Communicate to employees their rights and responsibilities from this document and federal laws (such as Executive Order 12196, 29 CFR 1960, Basic Program Elements for Federal Employee Occupational Safety and Health , and 29 CFR 1977, Discrimination Against Employees Exercising Rights Under the Williams-Steiger Occupational Safety and Health Act of 1970).

### 2.3.6 Professional and Technical Positions

Professional and Technical Personnel shall:

- a. Assure compliance with applicable sections of NPR 8715.3.

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- b. Participate in safety meetings and activities as required.
- c. Attend and complete safety training that is assigned or required.
- d. Maintain assigned safety responsibilities.
- e. Participate in workplace safety inspections when solicited.
- f. Follow safety and health standards, rules, regulations, and guidelines issued by the OSHA, NASA, and NASA SSC.
- g. Perform all assigned responsibilities in support of the NASA SSC contractor and construction contractor safety program.
- h. Ensure visitors are escorted and aware of the hazards and requirements to be followed in the areas they visit.
- i. Work in a manner that helps achieve safety metric goals and other safety performance objectives.
- j. Understand and implement PSM if work duties are performed in PSM-covered areas.
- k. Understand the health and safety requirements of their work, including using required engineering controls, administrative controls and personal protective equipment (PPE).
- l. Understand the appropriate response to alarms and evacuation procedures when required.
- m. Use established procedures to report and correct hazards.
- n. Obtain medical care in the event of a job-related injury or illness.
- o. Report all mishaps and close calls.
- p. Cooperate with safety and health personnel during inspections, surveys, and investigations.
- q. Be knowledgeable in employee rights and responsibilities from this document and federal laws (such as Executive Order 12196, 29 CFR 1960, Basic Program Elements for Federal Employee Occupational Safety and Health , and 29 CFR 1977, Discrimination Against Employees Exercising Rights Under the Williams-Steiger Occupational Safety and Health Act of 1970).

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### 2.3.7 Office of Safety and Mission Assurance

The Safety and Mission Assurance Office is responsible for guiding the implementation of Safety and Health Policy, supervising the conduct of safety programs, and monitoring and evaluating the effectiveness of safety goals.

The Office of Safety and Mission Assurance shall:

- a. Assure compliance with applicable sections of NPR 8715.3.
- b. Be the Office of Primary Responsibility (OPR) for this document and its requirements for NASA SSC.
- c. Provide risk analysis support to the SSC Center Director and identify priorities.
- d. Provide guidance and support to the NASA line organizations as they implement the NASA SSC Safety and Health Program to achieve compliance and a continuous improvement in safety as applicable to their operations.
- e. Provide technical support to NASA SSC operations.
- f. Establish and maintain Center-wide safety processes such as mishap and close call reporting and investigation. Use data generated by these systems to assist in trend analyses.
- g. Develop and provide safety training for NASA SSC employees.
- h. Establish a Safety Certification and Training Program with associated requirements for SSC.
- i. Verify NASA Close Call and Safety Reporting System posters are distributed and displayed.
- j. Monitor and evaluate NASA SSC contractors and construction contractors' performance periodically and at a minimum annually.
- k. Assist in the review of prospective contractor's Safety and Health programs and plans prior to the final selection of contractors and construction contractors.
- l. Assist in the solicitation and proposal review process.
- m. Complete a VPP Annual Review of NASA SSC operations and develop goals and objectives for the coming year based upon the results of the annual review and upcoming challenges.

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- n. Conduct program evaluation surveys when necessary to solicit employee opinions and determine opportunities for improvement in safety programs.
- o. Maintain NASA SSC safety recordkeeping.
- p. Enforce and reinforce safety and health rules, regulations and practices within NASA SSC, contractors and construction contractors, through audits, inspections, and daily observations.
- q. Assess needs for resources at least annually and request the necessary funds to meet NASA SSC safety goals, objectives, and projects.
- r. Participate in safety committees such as the Safety Management Review and Striving to Achieve Real Safety (STARS).
- s. Participate in weekly Construction Safety Reviews.
- t. Coordinate closely with requiring organization in the review of specifications, drawings for sensitive items and sign off on specifications and drawings as well as disposition of NASA Form (NF) 1707, Special Approvals and Affirmations of Requisitions.
- u. Participate in Material Review Boards, Configuration Control Boards, Pressure Vessel Committee, Design Reviews, and other related boards as necessary.
- v. Perform Job Hazard Analyses (JHAs) when necessary or requested.
- w. Verify safety inspection requirements are being achieved in the operations of NASA SSC, its contractors and construction contractors.
- x. Establish and maintain an effective PSM program that meets the needs of NASA SSC.

### **2.3.8 Center Operations Directorate**

The NASA/SSC Center Operations is responsible for managing and directing the Industrial Hygiene (IH), Health Physics (HP), Occupational Medicine (OM), Fire Protection/Prevention, Emergency Response and Environmental programs at NASA SSC.

The Center Operations Directorate shall:

- a. Assure compliance with applicable sections of NPR 8715.3.
- b. Oversee and direct the activities of the Facilities Operations Services (FOS) IH, HP, OM, and Fire Protection/Prevention functions, evaluate work areas for hazards, and communicate results to management and employees.

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- c. Oversee and direct the activities of the on-site prime contractors with regard to their IH, HP, OM and Fire Protection/Prevention responsibilities, evaluate work areas for hazards, and communicate results to management and employees.
- d. Establish and maintain selected IH, HP and OM programs such as hearing conservation, respiratory protection, ergonomics, hazard communication, hazardous materials, radiation safety, blood borne pathogens and employee/workplace monitoring.
- e. Establish training requirements for NASA SSC employees and serve as a member of the NASA SSC Certification and Training Board.
- f. Share responsibility with SMA for this document and its requirements.
- g. Provide guidance and support to the NASA line organizations as they implement the NASA SSC IH, HP, OM and Fire Protection/Prevention programs and achieve continuous improvement as applicable to their operations.
- h. Participate in Center-wide safety processes such as mishap and close call reporting and investigation, using the data generated by these systems to assist in trend analysis.
- i. Ensure host tenant agreements address tenants' health and safety requirements.
- j. Verify appropriate postings for IH, HP, OM and Fire Protection/Prevention are posted as required.
- k. Assist in the evaluation and selection of contractors and construction contractors.
- l. Participate with SMA in the completion of a VPP Annual Review of NASA SSC operations and developing goals and objectives for the coming year based upon the results of the annual review and upcoming challenges.
- m. Participate in the completion of an evaluation survey when it becomes necessary to solicit employee opinions and determining opportunities for improvement.
- n. Ensure NASA SSC IH, HP, OM and Fire Protection/Prevention records are maintained.
- o. Enforce and reinforce safety and health rules, regulations and practices within NASA SSC, contractors and construction contractors, through audits and daily observations.
- p. Assess needs for resources at least annually and request the necessary funds to meet Center Operations IH, HP, OM and Fire Protection/Prevention responsibilities.
- q. Participate as necessary in safety committees such as Safety Management Review and STARS.

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- r. Participate in Material Review Boards, Configuration Control Boards; Pressure Vessel Committee, Design Reviews, and other related Boards as necessary.
- s. Participate in JHAs when necessary or requested.
- t. Verify IH inspection requirements are being achieved in NASA operations, contractors and construction contractors.
- u. Serve as a resource for the PSM program at NASA SSC.
- v. Oversee the contractors with regard to their Fire Protection/Prevention plans, processes, and systems.

The NASA SSC Emergency Director shall:

- a. Fulfill the responsibilities defined in SPLN 1040-0006, Emergency Management Plan
- b. Actively participate in Safety and Health processes as defined in section 2.3.12.

### **2.3.9 Office of Procurement**

The Office of Procurement is responsible for providing comprehensive acquisition management and capability for SSC in support of NASA/SSC programs, other resident agency programs and tenant needs consistent with NASA Policy Directive NPD 5101.32D, Procurement.

The Office of Procurement shall:

- a. Assure compliance with applicable sections of NPR 8715.3.
- b. Direct and monitor the overall administration of the contract.
- c. Ensure contract compliance with contract terms and conditions for NASA SSC safety and health policies and procedures.
- d. Serve as the primary contact for resolution of contractual issues concerning safety and health requirements.
- e. Participate in monthly Senior Management Review meetings.
- f. Serve as advisor on NASA SSC Certification and Training Board.
- g. Participate in the Configuration Control Board for construction.

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### 2.3.10 Facility Managers / Operations Managers

Facility Managers and Operations Managers shall:

- a. Assure compliance with applicable sections of NPR 8715.3.
- b. Communicate, document, and coordinate the resolution of safety and health issues with the parties responsible for accomplishment of corrective actions.
- c. Monitor assigned facilities for safety, health, and facility management issues.
- d. Monitor, track, and report the status of safety and health work requests and completed actions for assigned facilities.
- e. Use available resources, including NASA SSC subject matter experts, to address and mitigate safety and health issues in and around assigned facilities.
- f. Actively participate in all phases of SSC emergency exercises including planning, execution, and critique for their assigned facilities.

### 2.3.11 Prime Contractor General Managers

On-site Prime Contractor General Managers shall:

- a. Establish, implement and monitor compliance with all applicable government regulations, contract specifications, and NASA policies and procedures.
- b. Provide a safe and healthy work environment for employees, contractors and subcontractors.
- c. Ensure flow down of all Safety and Health requirements to subcontractors.
- d. Participate in the monthly Safety Management Review meetings and present the following as requested:
  1. The status of safety and health corrective actions resulting from inspections, audits, and reviews from outside agencies.
  2. Injury/illness incident rates and incident summaries.
  3. The status of maintaining or achieving VPP Star.
- e. Promote a strong safety policy through staffing, resources, and by setting priorities.

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- f. Develop and maintain VPP standards as applicable.
- g. Reinforce and enforce safety through line management to ensure safety responsibilities are maintained.
- h. Actively participate in safety related activities and report activities to NASA on an annual basis.
- i. Require on time completion of an Annual Safety and Health Review, which includes OSHA compliance status, injury/illness performance, trend analysis, accomplishments, and goals for the next year.
- j. Establish procedures to protect NASA SSC team members and members of the public who may be exposed to safety and health hazards while visiting or working in areas under the contractor's access control.
- k. Ensure safety and health plans and work instructions are developed, maintained, enforced and reviewed to achieve conformance with VPP requirements.

### **2.3.12 All NASA SSC Personnel**

NASA SSC personnel shall:

- a. Follow all applicable governmental safety and health regulations.
- b. Participate in safety meetings and activities as required.
- c. Attend and complete safety training as assigned or required.
- d. Actively engage in all assigned safety responsibilities.
- e. Participate in monthly safety inspections as directed.
- f. Comply with all safety and health standards, rules, regulations, and guidelines issued by the OSHA and NASA.
- g. Adhere to all applicable sections of the NASA SSC, contractor and construction contractor safety program.
- h. Ensure visitors are escorted and are aware of the hazards and requirements to be followed in the areas they visit.

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- i. Work in a manner that promotes a safe work environment and helps achieve a zero safety incident rate.
- j. Wear PPE as required.
- k. Recognize alarms, maintain knowledge of evacuation procedures, and understand the appropriate response to alarms.
- l. Support VPP through involvement.
- m. Use established procedures to report and correct hazards.
- n. Get medical care in the event of a job-related injury or illness.
- o. Report all mishaps and close calls.
- p. Cooperate with safety and health personnel during inspections, surveys, and investigations.
- q. Be knowledgeable of employee rights and responsibilities from this document and federal laws (such as Executive Order 12196, 29 CFR 1960, Basic Program Elements for Federal Employee Occupational Safety and Health , and 29 CFR 1977, Discrimination Against Employees Exercising Rights Under the Williams-Steiger Occupational Safety and Health Act of 1970).

## 2.4 Line Accountability

NASA SSC managers and supervisors are accountable for safety and health within their organizations. Accountability for ensuring NASA SSC contractors and construction contractor's compliance with NASA safety requirements is the responsibility of the CO, COTR and Task Monitors. The methods used to achieve accountability shall include but are not limited to:

- a. Employee safety and health performance reviews using the semi-annual performance appraisal process.
- b. Monthly reviews of critical safety and health metrics by the Center Deputy and Associate Directors.
- c. SMA audits through work areas to determine compliance with regulatory requirements and evaluations of critical processes. Audits will include NASA, contractor and construction contractor personnel.

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- d. Enforcement of safety and health rules will be verified through documentation.
- e. SMA meetings with the COTR and CO to review safety and health findings or violations of OSHA, NASA, or contractual requirements.
- f. Incentive programs (as applicable) that reward contractors, construction contractors, and employees for excellent performance.
- g. Penalties imposed for not following NASA SSC safety and health requirements. These penalties shall be in accordance with each respective contractors' work practices and policies.

## 2.5 Resources

In order to provide adequate authority and resources for a successful safety and health program, NASA SSC shall:

- a. Delegate the appropriate level of authority to those with assigned safety and health responsibilities. Responsibilities shall be clearly communicated and supported with on-going training.
- b. Provide for a safety presence cover on all shifts.
- c. Review safety and health budgets annually and provide resources to ensure safe working environment for all SSC employees.
- d. Use appropriate experts such as Certified Safety Professionals, Certified Industrial Hygienists, licensed health care professionals, emergency responders, and other experts as needed based on the risks at NASA SSC.
- e. Utilize resources from other Centers to assist in the investigation of mishap and other incidents.

## 2.6 Goals, Objectives and Planning

- a. The NASA SSC overall management planning process is based on the VPP Annual Self-Evaluation and Trend Analysis and includes safety and health as the core element. SMA together with Center Operations will lead the safety and health goals and planning process for SSC.
- b. The NASA SSC Safety Management Review Committee shall review and approve the safety and health goals.

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c. The goals and planning process shall result in:

1. The establishment of goals and objectives for NASA SSC that promote continuous improvement, address critical project needs, and result in safety metrics that will be used to measure progress for all SSC in the coming year.
2. The provision of adequate resources for managing safety and health challenges in the coming year. These challenges may include new construction, new contracts, new technology, program requirements, NASA initiatives or new / revised policies and procedures.
3. The reduction of safety and health risks to all SSC employees and the promotion of a positive changing safety culture.
4. The communication of goals and objectives to all NASA employees and on-site prime contractor General Managers. It is expected that the on-site prime contractors use the information and adjust their goals and planning effort accordingly.

## 2.7 Safety and Health Management System Self-Evaluation

### 2.7.1 Requirements

- a. The VPP Self-Evaluation shall be the primary process used to summarize the findings of all health and safety evaluations. This includes the Annual Operating Agreement (AOA), submitted to Headquarters.
- b. The VPP Evaluation shall be completed annually by the 15<sup>th</sup> day of February.
- c. Applicable on-site prime contractors shall complete their own VPP Self-Evaluations by December 31 of every year to assist in the completion of the NASA SSC Self-Evaluation.
- d. The SMA Office shall complete, publish and distribute the annual Self-Evaluation.
- e. Center Operations shall support the SMA office in the completion of the Annual Self-Evaluation.
- f. The evaluation report shall be a written narrative report consisting of recommendations for improvements, identification of responsible persons, target completion dates, and adequate follow-up action, or the justification for no action.

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- g. The evaluation shall assess the effectiveness of all elements in the NASA SSC Safety and Health Program.
- h. NASA SSC or other private sector organizations, which are trained or experienced in the evaluation of safety and health programs, may conduct the evaluation. The evaluation shall follow the format specified by OSHA VPP, Region IV and CSP 03-01-003, Voluntary Protection Program (VPP) Policy and Procedures.

### 2.7.2 Process for Program Evaluation

- a. NASA SSC SMA shall utilize VPP self-assessment and agency surveys as required to provide a measure of employee and manager perceptions about the effectiveness of the Safety and Health Program.
- b. NASA SSC SMA shall:
  - 1. Review previous year's safety Self-Evaluation.
  - 2. Review this document to ensure familiarity with the requirements.
  - 3. Review the status of all actions listed in the previous year's report. Completed actions will be listed as accomplishments.
  - 4. Evaluate current year's safety and health performance by utilizing:
    - a) Interviews with subject matter experts.
    - b) OSHA compliance checks.
    - c) Reviews of contractors' self-evaluations.
    - d) Meetings with contractors to assess the quality of their self-evaluation.
    - e) Self-audits and inspections.
    - f) Review of the Construction Safety Program and all incidents and findings.
    - g) Review the results of NASA self-assessments and surveys.
    - h) Any available leading metrics of injury/illness statistics or inspection data.
    - i) Investigation and trend data.
    - j) Other methods as appropriate.

### 2.7.3 Publishing and Distribution

- a. Prior to publication of the Self-Evaluation report, SMA shall:
  - 1. Ensure all Center directorates and offices supply input and have the opportunity to comment on the report.
  - 2. Get approval signatures from:
    - a) NASA SSC Center Director.

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- b) Deputy and Associate Directors.
- c) Center Operations Director and SMA Manager
- d) STARS Committee Chair.

- b. SMA shall post the final report on the NASA SSC Safety and Health Web page.
- c. SMA shall send a copy to NASA Headquarters, Safety and Risk Management Division, Code QS.
- d. When VPP Star is achieved, this report shall be distributed to the OSHA VPP, Region IV Manager.

#### **2.7.4 Safety and Health Records**

Safety and health program records shall be maintained in accordance with NPR 1441.1, NASA Records Retention Schedules and SPR 1440.1, Records Management Program Requirements.

#### **2.8 Contractor Safety**

Three major components shall be included in the contractor safety program. These are:

- a. Evaluation and Selection.
- b. Oversight and Management.
- c. Measurement and Evaluation.

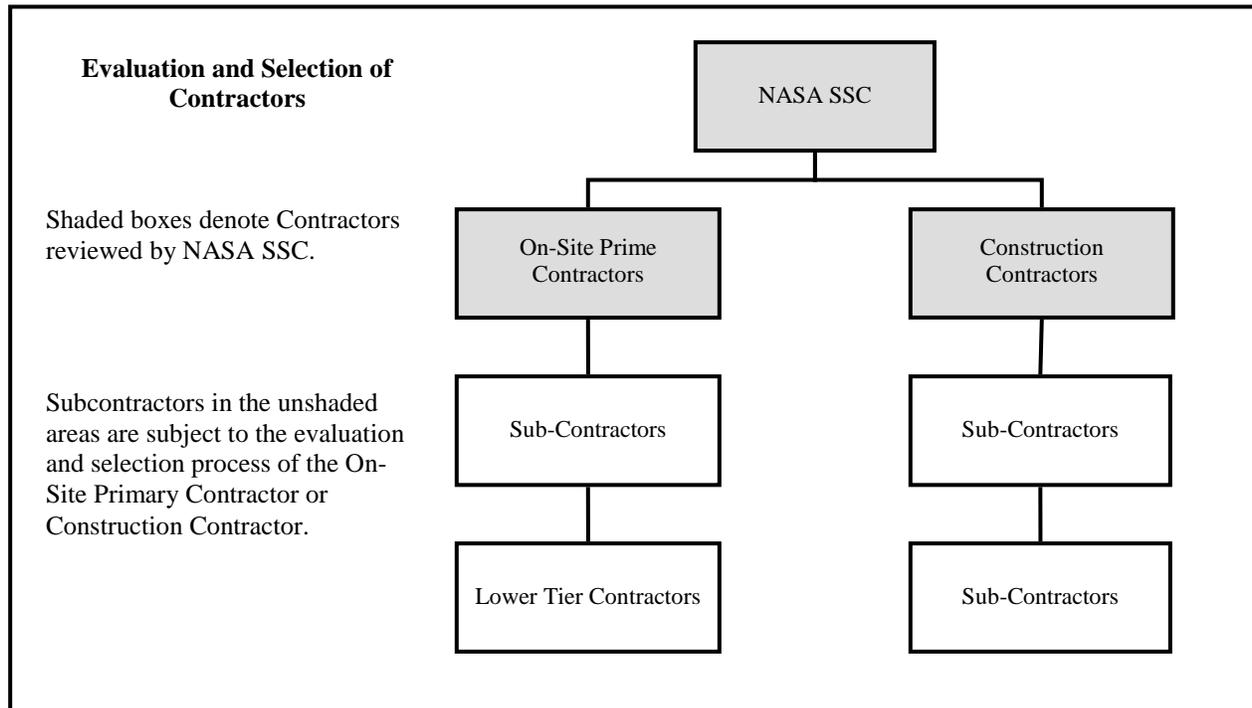
##### **2.8.1 Evaluation and Selection**

NASA SSC on-site prime contractors and construction contractors shall be subject to a safety and health selection and review process that is based upon the type of contract, scope of work, applicable governmental regulations, and NASA procurement policies and specification requirements.

- a. Safety and health requirements shall be made available as specified in SSP-8715-0001, SCC Safety and Health Handbook. These requirements and specifications shall hold contractor employers accountable to provide equal protection to contract workers just as NASA provides protection to its Civil Service employees. It shall also include requirements for VPP recognition.
- b. The chart below in Figure 1 is a representation of the types of contractors that are part of the contractor safety program and subject to NASA SMA involvement in the evaluation and selection process. In general, NASA MA Office is involved in reviewing the safety and health qualifications of those contractors that appear in the shaded boxes. Those contractors

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that are not directly or indirectly reviewed by NASA shall undergo a similar evaluation by the approved NASA on-site prime contractor or construction contractor.



**Figure 1. Safety Program Contractor Involvement and Evaluation**

- c. Contractors shall submit all information as specified in the Contractor Specifications and Solicitation and Offer documents.
- d. Receipt of this information shall initiate an evaluation and selection review.
- e. Safety plans and evaluation review documents shall be maintained in the Office of Procurement and SMA Office.
- f. Applicable on-site prime contractors that perform evaluation and selection of contractors shall maintain all documentation related to the process so it is available for NASA SMA audits.

## 2.8.2 Oversight and Management

- a. The CO and COTR shall oversee the contract and its effective management with regard to safety and health.

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- b. SMA and Center Operations shall serve as the primary auditors of safety and health performance.
- c. On-site prime contractors shall develop, implement, and maintain safety and health procedures (work instructions) that meet or exceed governmental requirements.
- d. Where NASA SSC situational and/or operational risks dictate, NASA shall specify or highlight any additional safety requirements they deem necessary for the purpose of standardization or emphasis in addition to the OSHA requirements.
- e. On-site prime contractors shall:
  1. Participate in NASA safety and health committees and meetings.
  2. Utilize Mishap Investigation and close call processes.
  3. Self-inspect work areas and correct deficiencies.
  4. Complete Annual Safety and Health Evaluations.
  5. Maintain up-to-date safety and health procedures.
  6. Achieve 100% attendance at required OSHA training.
  7. Orientate new employees to safety and health requirements and risks.
  8. Maintain records in an orderly manner.
  9. Maintain adequate resources to address safety and health needs.
  10. Implement an effective housekeeping program.
  11. Maintain effective action tracking systems.
  12. Identify and address risks in a timely manner.
  13. Perform internal audits of employees and of subcontractors.
  14. Involve their employees in safety and health processes.
  15. Take appropriate action for violations of safety and health rules, practices, and/or procedures.

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f. Construction Contractors shall:

1. Follow all requirements of NASA SSP-8715-0001, Safety and Health Handbook and all work instructions pertaining to Construction Safety and Health.
2. Meet or exceed contractual safety and health responsibilities.

### **2.8.3 Measurement and Evaluation**

- a. Successful management of safety and health programs require an effective measurement and evaluation process. The VPP method of Self-Evaluation, Trend Analysis, and tracking corrective actions to completion shall be the preferred measurement and evaluation process used by NASA SSC, on-site prime contractors and subcontractors at NASA SSC.
- b. Construction contractors shall be audited and evaluated on a project-by-project basis.

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### **CHAPTER 3. EMPLOYEE INVOLVEMENT**

- a. NASA SSC shall be dedicated to the involvement of employees in the Safety and Health Program at all levels, including contractor and construction contractors. This commitment is demonstrated through NASA SSC employee involvement processes required of contractors and construction contractors.
- b. Employee involvement opportunities shall include but are not limited to:
  1. Safety and Health Committees and Councils.
  2. Employee workplace Safety Meetings.
  3. Safety and Health Promotion Activities.
  4. Employee Opinion Surveys.
  5. Construction Contractor "Toolbox" Meetings.
  6. Close Call Program.

**Note:** For a list of responsibilities and additional information regarding meeting schedules and proposed agendas, refer to the SSP-8715-0001, SSC Safety and Health Handbook.

#### **3.1 Safety and Health Committees and Councils**

- a. NASA SSC has established a Senior Management Review monthly meeting. This meeting provides a professional forum for the discussion of safety and health requirements, metrics, policies and procedures by NASA SSC and contractor senior management.
- b. NASA SSC supports, promotes, and provides resources for an employee organized and controlled health and safety committee. The committee has chosen to be named the "STARS" committee and is comprised of  
  
NASA SSC and contractor employees. "STARS" is an acronym for "Striving To Achieve Real Safety." This committee will meet on a monthly basis. The overall goal of the STARS committee shall be to promote safety and health site-wide.
- c. The NASA SSC contractors each shall have their own employee-based safety committees. The goal of these committees is to promote safety and health throughout the contractor's organizations.
- d. SSC has also established a Center Safety and Health Council made up of NASA, contractors and resident agencies. This council provides a professional forum for the discussion of safety and health requirements, awareness, and overall safety and health policy for all agencies and activities at SSC. The Center Health and Safety Council Shall meet on a quarterly basis with a prepared agenda

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### 3.2 Employee Workplace Safety Meetings

- a. Employee workplace safety meetings shall be conducted by NASA SSC, its contractors and construction contractors.
- b. Safety meetings shall be held on a weekly basis for construction operations and monthly for NASA SSC and on-site prime contractors.
- c. Workplace safety meetings shall be led by line management with attendance documented and maintained.

### 3.3 Safety and Health Promotion

- a. NASA SSC shall establish programs to promote safety and health. The type and extent of safety and health promotional programs are subject to budgetary, scheduling, and unplanned constraints.
- b. Safety and health promotional programs shall include participation from all NASA SSC, contractors, and construction contractors.

### 3.4 Construction Contractor “Toolbox” Meetings

- a. NASA’s contractors shall provide and conduct weekly safety meetings, “toolbox” meetings, to instruct and promote construction site safety.
- b. Documentation of these meetings shall be available for review by NASA SMA or Center Operations IH Department.

### 3.5 Close Call Programs

- a. NASA SSC shall maintain a Close Call reporting process for events or conditions with the potential to result in an accident, injury, or illness. All employees have access to the Close Call reporting process through the NASA SSC portal page. The Close Call program is promoted through posters and by each on-site resident contractor.
- b. All close calls shall be reported to and investigated by S&MA.

**Note:** Close calls may be entered on either NASA Form 1627 or the NASA SSC web-based “Quick Form” Close Call Reporting System that is available on the SSC portal page.

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## CHAPTER 4. WORKSITE ANALYSIS

### 4.1 Baseline Hazard Analysis

This section describes the requirements for IH Baseline Hazard Analysis and System Safety.

#### 4.1.1 Program Elements

NASA SSC has diverse work areas and hazards that are common to most industries as well as some that are unique to rocket propulsion testing. Additionally, NASA SSC can face environmental conditions that provide great challenges. NASA SSC shall maintain a process to address the hazards faced by NASA SSC employees. These include but are not limited to:

- a. IH Baseline Hazard Analysis.
- b. System Safety.
- c. Process Safety Management (covered in section 5.6).

#### 4.1.2 IH Hazard Analysis

- a. NASA SSC and applicable on-site prime contractors shall perform and document an IH Baseline Hazard Analysis that conforms to the American Industrial Hygiene Association (AIHA) "A Strategy for Assessing and Managing Occupational Exposures", or other standard as accepted by NASA SSC Industrial Hygiene.
- b. The IH Hazard Analysis shall be submitted to the Center Operations IH for review and acceptance.
- c. The IH Hazard Analysis shall result in a comprehensive IH Program which includes:
  1. Development of an annual sampling strategy.
  2. Sampling, analysis and documentation that comply with accepted professional Industrial Hygiene practice.
  3. Laboratory analysis of Industrial Hygiene samples performed by a laboratory accredited for the analysis by the AIHA.
  4. Use of OSHA Permissible Exposure Limits (PEL's), the latest annual edition of the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLV's) or other available exposure guidelines.
  5. The TLV for a specific substance shall be applied consistent with the basis, rationale, and limitations contained in the documentation for the substance published in the "Documentation of the Threshold Limit Values and Biological Exposure Indices."
  6. Maintenance of all IH monitoring records, annual sampling strategies, and employee notification documents.
  7. Assessment of the adequacy of existing controls.

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- d. The IH Baseline Analysis will be reviewed and updated annually, whenever new health hazards are introduced into the workplace, or when there are significant changes to processes that would reasonably be expected to increase worker exposure.

#### 4.1.3 System Safety

- a. The System Safety Program shall be utilized as a mission-based process that applies to facility and safety professionals who are involved in facility acquisition or modification/construction process of life cycle phases at NASA SSC installations.
- b. System Safety shall also be performed on Test Programs to modify facilities to accommodate test projects. The safety achieved in a system is dependent upon the importance safety is given during the requirements, planning, design, construction, activation, operation, and disposal phases of each system and facility.
- c. The System Safety program at NASA SSC shall meet the requirements of NASA Procedural Requirements Document NPR 8820.2, Facility Project Requirements.
- d. NASA SSC System Safety Program shall be described in SSP-8715-0001, SSC Safety and Health Handbook.
- e. The System Safety program is guided by the completion of risk assessments performed for facility acquisition and modification/construction work. The following shall be required:
1. Control and Mitigation: When a risk to human life, equipment, or the environment cannot be avoided, the organization's system safety representative shall ensure adequate steps are taken to control or mitigate the risk.
  2. System Safety and Risk Assessments: Safety and risk assessments shall be performed in accordance with SPR 7120.1, John C. Stennis Space Center Risk Management.
  3. Risk Assessment Management: Safety and risk assessments shall be managed by SMA.
  4. System Safety and Risk Analysis: Facility Risk Indicators (FRI) and Hazard Analyses shall be used to assess safety and risks.
  5. Risk Management: Management shall make decisions regarding overall risk using risk assessment estimates of future losses and the effectiveness of additional controls.
  6. Operational Readiness Assessment: NASA SSC Safety personnel shall conduct an Operational Readiness Assessment (ORA) per SPR 8715.2, John C. Stennis Space Center Operational Readiness Program Procedural Requirements, in a facility prior to its activation. **Note:** By considering the size and complexity of the project and the safety risks associated with the project, this assessment will help identify the system safety activities (which should be accomplished early in the acquisition process) and how resources should be allocated.

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7. Configuration Control: The applicable work instruction for Configuration Management (CM) shall be the governing document for CM.

#### **4.2 Hazard Analysis of Significant Changes, New Processes and Non-Routine Tasks**

- a. SMA and Center Operations Industrial Hygiene (IH) shall be involved in the design, modification and review of new processes and construction, process changes and facility modifications.
- b. SMA and Center Operations IH shall participate as necessary on Design Review Boards.
- c. SMA and Center Operations IH shall signatory requirements on design packages before the packages are released.
- d. Activation or start-up of new or modified systems is forbidden until the proposed changes are authorized by the appropriate Operational Readiness Assessment Board.
- e. Recommendations from SMA and Center Operations for hazards that are deemed high risks or critical shall be entered, tracked and addressed by mitigation before start-up of any process or facility.
- f. Recommendations for hazards that are not addressed based upon risk ranking shall be entered and tracked until completion.
- g. When changes occur in PSM-covered areas all design, modification and reviews shall be subject to PSM requirements.

#### **4.3 Hazard Analysis of Routine Jobs, Tasks, and Processes**

NASA SSC promotes two processes to address the Hazard Analysis of routine jobs, tasks and processes. The first is an Activity Hazard Analysis and the second is a Job Hazard Analysis. Procedures or work instructions that describe the Activity Hazard Analysis and JHAs shall be developed and maintained by NASA SSC and its contractors and construction contractors.

##### **4.3.1 Activity Hazard Analysis**

- a. An Activity Hazard Analysis is a process that is used to analyze the risks of necessary activities, tasks, or processes prior to the performance of work. This process shall be required of NASA, contractor and construction activities and shall be completed prior to the start of work.

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- b. An Activity Hazard Analysis shall not be confused with a Job Hazard Analysis. The Activity Hazard Analysis more closely resembles a work permit system and is commonly referred to as a Pre-use Analysis. Details of the Activity Hazard Analysis requirements, its application and process can be found in the SSP-8715-0001, SSC Safety and Health Handbook.

#### **4.3.2 Job Hazard Analysis (JHA)**

- a. A JHA is a process developed to address the hazards of routine jobs and/or tasks. NASA SSC, on-site prime contractors and construction contractors shall be required to perform JHAs to address risks of job/tasks.
- b. The JHA structure shall include the steps of the job/tasks, hazards for each step, cause of hazards for each step and prevention steps/recommendations to address the hazards of each step (including PPE). Details of the JHA requirements, its application, and process can be found in the SSP-8715-0001, SSC Safety and Health Handbook.

#### **4.4 Routine Self-inspections and Audits**

Self-inspections at NASA SSC shall include Facility Safety Inspections, Critical Item Inspections, Director Level, SMA inspections, and SMA audits.

##### **4.4.1 Facility Safety Inspections**

- a. NASA SSC and its contractors shall conduct inspections of their operations so that their entire worksite has been inspected at least once per quarter. Construction contractors shall be required to inspect their operations so that their entire worksite is covered at least once weekly.
- b. The inspection process is defined in SCWI 8715-0005, SSC Safety, Health, Housekeeping and Essential Item Inspection.
- c. Personnel who perform these inspections shall be individuals outside of the SMA or Center Operations IH Departments in order to promote employee involvement and keep the ownership of safety and health in the proper area of responsibility.
- d. All persons performing Facility Safety Inspections shall be trained in hazard recognition, the process for inspecting their work areas, writing work requests, and hazard abatement.
- e. All documentation of inspections shall be maintained in accordance with the SSP-8715-0001, SSC Safety and Health Handbook.

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- f. Deficiencies resulting from Facility Safety Inspections shall be entered into the facility managers data base, a system that tracks the deficiencies until corrective actions have been completed.

#### **4.4.2 Critical Item Inspections**

- a. NASA SSC and its contractors and construction contractors shall identify and inspect equipment, devices, and processes critical to maintaining employee safety and health. These may include, but are not limited to, fire systems, eyewash stations, safety devices, check valves, emergency stops, and lifting devices.
- b. The completion of Critical Item Inspections shall be documented by the use of manually and/or electronically generated checklists from a computer based maintenance management program. The process employed to perform these inspections, responsibilities, and descriptions of the critical item inspection program can be included in the written procedure for self-inspections, a stand-alone procedure, or may be described in other safety and health procedures.
- c. Completed Critical Item Inspections checklists with corrective action lists shall be managed as records by the organization responsible for the area or system inspected.

#### **4.4.3 Periodic Senior Management Safety and Health Inspections**

- a. NASA SSC, its contractors and construction contractors shall perform Periodic Safety and Health Inspections to identify hazards and set the standard for safety and housekeeping within an operation.
- b. The completion of a Senior Management Safety and Health Inspection shall be documented by written comments and an associated corrective action list.
- c. This documentation shall be directed to the attention of line management responsible for operations in the area inspected for correction and tracking.
- d. Documentation of Senior Management Inspections and completion of corrective actions shall be managed as records by the organization responsible for the area or system inspected.

#### **4.4.4 Inspection Quality**

- a. SMA shall ensure the quality of each inspection process is being managed and maintained effectively.

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- b. The completion of a re-inspection by SMA shall be documented by written comments with an associated corrective action list.
- c. This documentation shall be directed to the attention of line management responsible for operations in the area re-inspected for correction and tracking.
- d. Serious findings may result in penalties or loss of incentives to the contractor per contract requirements.

#### 4.4.5 SMA Audits

- a. NASA SSC SMA, contractors and construction contractors shall perform frequent and random audits of fieldwork. These audits will include, but are not limited to, lockout/tagout, confined space entry, maintenance, service, construction, welding, shop work, repair, and troubleshooting.
- b. The process and forms used for completing such audits shall be made available through SSP-8715-0001, SSC Safety and Health Handbook and the SMA web site.
- c. Records of audits shall be maintained and available for review by NASA SSC S&MA.
- d. Audit findings of serious nature and recommendations shall be documented and tracked to completion through a corrective action tracking system.
- e. NASA SSC SMA shall schedule and monitor strategic safety audits as required. A third party or the Defense Contract Management Agency (DCMA) group may conduct this audit.
- f. Headquarters audits shall be performed in accordance with applicable NASA policy or directives.

#### 4.5 Hazard Reporting

All NASA SSC employees shall be encouraged to report hazards to their supervisors and/or document the hazard in one of the three reporting systems.

##### 4.5.1 Trouble Desk

The FOOSC Trouble Desk is the most common way for employees to report hazards. Feedback to employees is not expected when the Trouble Desk system is used.

- a. The FOOSC Trouble Desk shall receive the report from the employee, log the report and forward the request to the appropriate department for correction.

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- b. The department receiving the request shall prioritize the request based on risk to health and safety and complete the work in the order of priority.
- c. Documentation of FOSC Trouble Desk requests shall be tracked to completion and maintained as records by the FOS Contractor.
- d. Corrective actions of safety work request shall be completed within the established timeframe.
- e. Corrective actions for safety work request of any priority shall **NOT** exceed 360 days without approval and concurrence by NASA SSC SMA and Center Operations.
- f. The Center Director's office shall be notified of unapproved, uncorrected action items greater than 360 days along with recommendations to close those items.

#### 4.5.2 Close Call

- a. The Close Call Reporting System (CCRS) shall be used by NASA SSC, its contractors and construction contractors to report any events or conditions that may result in an injury, illness, or property damage. The NASA SSC main portal page contains a link to the Close Call Reporting System where Close Call reports can be reported. They may also be reported by using NASA SSC Mishap Report (SSC 1627).
- b. The close call process shall be used for reporting serious unsafe conditions.
- c. NASA SSC SMA shall investigate the report and expedite corrective action for the deficiency or unsafe condition.
- d. NASA SSC SMA shall provide feedback to the individual reporting the close call if contact information is provided.

#### 4.5.3 NASA Safety Reporting System (NSRS)

- a. NASA SSC and contractor employees shall use the NSRS as a last resort when other methods of reporting do not resolve the employee's concern. Use of the NSRS system is encouraged within NASA SSC when needed.

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- b. Access to the NSRS is available to employees from the NASA SSC portal page. Forms for this reporting process are also available through the S&MA Office in the event an employee prefers to mail a concern or request.

#### **4.6 Mishap (Accident/Incident) Reporting and Investigations**

- a. NASA SSC, contractors and construction contractors shall comply with the requirements of NPR 8621.1, NASA Procedural Requirements for Mishap and Close Call Reporting, Investigating and Recordkeeping.
- b. All SSC employees shall report all mishaps, including first aid injuries, close calls and property damage to their supervisors.
- c. Within 24 hours of occurrence or receiving a report, the supervisor shall complete a NASA SSC Mishap Report (SSC 1627) or the Close Call Report. Close Calls may be documented on the SSC 1627 or by completing the online “CCRS Quick Form” on the NASA SSC SMA portal.
- d. Dependent upon the classification of the mishap (i.e., Type A, B, C, D, or Close Call), NASA SSC may appoint a mishap investigation board (MIB) to investigate a mishap. Records of mishaps, first aid, property damage and Close Call investigations shall be maintained in SMA files and in the Incident Reporting Information System (IRIS) database.
- e. NASA SSC shall provide training to those persons who are required to conduct an investigation and/or maintain records in the IRIS database.
- f. NASA SSC, its contractors and construction contractors shall establish programs that describe the investigation procedures, assign responsibilities, outline required training, specifies the forms to be used, and define all recordkeeping requirements.

#### **4.7 Trend/Pattern Analysis**

- a. Continuous monitoring of trend analysis data obtained from reports of injuries/illnesses and facility inspections shall be analyzed to detect developing or existing trends that could lead to mishaps.
- b. SMA shall document the trend analysis results in the Annual Safety and Health Review and present results to the Center Director and Safety Management Review Committee on request.

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- c. The STARS committee and other employee-based organizations shall be informed of trend analysis results and be presented the opportunity to express their insight and recommendations for improvement.

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## **CHAPTER 5. HAZARD PREVENTION AND CONTROL**

Engineering controls, administrative controls, work practice controls, and personal protective equipment required for an operation shall be documented.

### **5.1 Engineering Control Methods**

Engineering controls are derived through a variety of safety and health processes. The System Safety, PSM, IH, and Mishap Investigation programs generate many types of engineering controls.

- a. NASA SSC, contractors, and construction contractors shall pursue engineering control solutions which directly eliminate a hazard or reduce its risk over PPE and/or administrative controls.
- b. Contractors and construction contractors shall also work to eliminate hazards and/or risks through engineering controls. Economics will play a critical role in the implementation of engineering controls.
- c. If the solutions to eliminate or reduce risks are cost prohibitive, there shall be a "back to the drawing board" approach to address the hazards/risks so that a more economical solution can be achieved in a timely manner.
- d. NASA SSC and its contractors shall employ the risk ranking methodology used in system safety so that serious risks are placed at a higher priority over lower risks.
- e. Successfully employed engineering controls shall be reported in the Annual Safety and Health Evaluation under the Accomplishments section.
- g. Local exhaust ventilation system design for controlling employee exposures or airborne contamination shall conform to the guidance in "Industrial Ventilation: A Manual of Recommended Practice".
- h. Engineering controls will be inspected and maintained on a regular basis to ensure their effectiveness. Laboratory hoods and local exhaust ventilation systems used to control employee exposure to hazardous materials will be inspected and tested annually.

### **5.2 Administrative Control Methods**

Administrative controls are another method of controlling or reducing risks. The type of administrative control will determine acceptability in the elimination of the hazard or the reduction of the risk. For example, an administrative control that removes an employee from an

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area when the hazard is present is acceptable. An administrative control that requires an employee to remember a procedure or steps is less acceptable.

- a. NASA SSC, its contractors and construction contractors shall work to eliminate or reduce risks through administrative controls, which achieve an acceptable degree of safety and will not result in human error.
- b. NASA SSC S&MA and/or Center Operations IH departments shall determine the acceptability of administrative controls whenever their acceptability is in question.
- c. Successfully employed administrative controls shall be reported in the Annual Safety and Health Evaluation under the Accomplishments section.

### 5.3 Work Practice Controls

NASA has developed general information regarding SSC's safety and health procedures that are contained in SSP-8715-0001, SSC Safety and Health Handbook. Additional work instructions have been developed which contain specific SSC Safety and Health information for selected topic in areas where further details are required. The SSC Safety and Health Handbook will identify those safety and health programs and provides a specific reference to those additional work instructions.

- a. NASA SSC and its contractors and construction contractors shall comply with government regulations.
- b. Work practice controls (i.e., SSP-8715-0001, Safety and Health Handbook and work instructions) shall be developed to direct compliance to government regulations and address possible work place risks that may be encountered.
- c. Specific work instructions shall be developed to provide guidance and instruction for safety and health programs related to best practices, awareness, or promotion.
- d. NASA SSC Civil Service, contractors, and construction contractors shall develop work instructions for activities, operations, and processes where employees may be exposed to work place hazards in the performance of their duties. Work instructions shall be developed that are interspersed with safety warnings and comply with all standards and regulations. Examples of work instructions include but are not limited to Hazard Communication, Hearing Conservation, Lockout / Tag Out, Confined Space Entry, Process Safety Management, Emergency Preparedness, Fire/Protection Prevention, and Safety Training.

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- e. NASA SSC contractors and construction contractors shall provide work instructions that comply with the requirements of all applicable regulations and any specific requirements unique to NASA SSC.
- f. SSP-8715-0001, SSC Safety and Health Handbook and any additional safety work instructions developed shall be available at any time for audit and review by NASA SSC and outside regulatory agencies.

#### 5.4 Safety and Health Rules and Disciplinary System

NASA SSC has many challenges relating to safety and health. NASA SSC opens its doors to the public, other governmental agencies, and contractors. In each situation, there are inherent differences in the application and enforcement of safety and health rules.

- a. NASA SSC shall establish basic safety and health rules that will govern the entire Center, including the public, resident agencies, and tenant organizations.
- b. Traffic and pedestrian safety rules shall parallel Mississippi State Code, Title III, Department of Transportation rules and shall be enforced through the NASA SSC Security Service.
- c. Violation of traffic and pedestrian safety rules shall be enforced by penalties.
- d. Passengers of motor vehicles driving on the confines of SSC shall comply with Federal Motor Vehicle Safety Standards as outlined in 49 CFR Part 571. Passengers shall not be carried in the cargo area of pickup trucks, flatbeds or special purpose equipment such as fire trucks or escape trucks unless designated occupant positions with seat belts are provided.
- e. SSC policy requires the use of seat belts for all occupants of motor vehicles operated (in motion) to include delivery vans and trucks of all sizes.
- f. SPR 1600.1, Stennis Space Center Security Requirements Handbook establishes and explains a point system for violations of traffic and pedestrian safety rules that depending upon severity and/or frequency shall result in the loss of driving privileges onsite.
- g. NASA SSC has established a disciplinary system as specified in NPR 3752.1. All NASA SSC Civil Service employees in violation of basic safety rules shall be disciplined as specified in the established NASA SSC disciplinary system based on severity and frequency of the violation(s).
- h. Violations of basic safety rules by contractors and construction contractors shall result in penalties imposed as specified in the NASA contract with each respective contractor.

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- i. All NASA SSC Civil Service employees shall be briefed on the safety and health rules by the following means:
  - 1. New employee orientation presented by FOS Contractor , Human Resources, SMA and the Hiring Manager.
  - 2. OSHA-required training and refresher training.
  - 3. Safety meetings.
  - 4. Written communication (e.g., newsletters or emails).
  
- j. NASA SSC contractors and construction contractors (company and employees) shall be briefed on safety and health rules through the following methods:
  - 1. New employee orientation presented by the FOS Contractor, SMA and the Hiring Manager.
  - 2. Construction Safety and Health Orientation presented by contractor management.
  - 3. Security handout during the sign-in and badge process.
  - 4. Contract terms and conditions including specifications.
  - 5. Safety meetings and/or toolbox meetings.
  
- k. Visitors and the general public shall be briefed on safety and health rules by their assigned NASA SSC escort.

### 5.5 Personal Protective Equipment (PPE)

The use of PPE is the least desired method of controlling or reducing risks. The type of PPE designated for each situation will determine acceptability in the elimination of the hazard or the reduction of the risk.

- a. NASA SSC Civil Service employee's PPE requirements are limited to those Civil Service employees whose work requires them to enter areas where specific PPE is required. Civil Service individuals with PPE required duties shall be designated by the Directorate or Office to which they are assigned. Civil Service individuals with duties requiring PPE and shall be included in their organization's PPE program and receive appropriate PPE User safety training.
  
- b. NASA SSC, contractor and construction contractors shall maintain a PPE program that meets or exceeds the requirements of 29 CFR 1910.132 – 138. Specific requirements of NASA SSC PPE program are covered in the SSP-8715-0001 SSC Safety and Health Handbook and SCWI-8715-0002 Personal Protective Equipment.

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## 5.6 Process Safety Management (PSM)

The establishment of an effective PSM program for NASA SSC, contractors, and subcontractors is dictated by the hazardous toxic commodities and associated high pressures used in daily processes to complete the assigned mission. Unexpected releases of toxic, reactive, or flammable liquids and gases in processes involving highly hazardous chemicals have been reported for many years in various industries that use chemicals with such properties. Regardless of the industry that uses these highly hazardous chemicals, there is a potential for an accidental release any time they are not properly controlled, creating the possibility of disaster.

- a. All systems containing any chemicals at or above the threshold quantity defined in 29 CFR 1910.119 at NASA SSC shall be evaluated to determine the applicability for the PSM standard.
- b. All contractors who manage systems requiring PSM shall have an active PSM program in compliance with the requirements of 29 CFR 1910.119 and for PSM as specified in SCWI 8715-0010 Process Safety Management.
- c. NASA SSC SMA shall assign a PSM Manager within the department responsible for monitoring NASA SSC, contractors, and construction contractors compliance with the Federal, State, Local, and NASA requirements of the PSM program on SSC.
- d. The PSM Manager shall:
  1. Complete training in all the elements of PSM.
  2. Develop and maintain a Stennis Common Work Instruction for management of Stennis PSM programs.
  3. Maintain a site-wide list of PSM-covered processes. The site-wide list shall be included in the SSC and contractor PSM procedures.
  4. Evaluate all processes. Include in the list of PSM-covered processes any new or previously not covered processes that would benefit from the application of PSM.
  5. Chair the SSC PSM Board consisting of the PSM Managers for NASA, contractors and subcontractors operating and maintaining SSC PSM covered systems.
  6. Ensure that new processes have been reviewed for applicability prior to start-up. The review shall include process expectations, standards and standardization, and templates for use in PSM program management by the various groups that manage the covered processes.
  7. Establish a training program for those NASA Civil Service employees who may work in a PSM-covered process.
  8. Develop in-house PSM overview training.

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- e.
- f. The Process Safety Management work instruction SCWI 8715-0010 will:
1. Provide guidance for compliance with OSHA 29 CFR 1910.119, Process Safety Management of Highly Hazardous Chemicals.
  2. Clearly define roles and responsibilities for PSM.
  3. Establish an SSC PSM Board to review new and proposed PSM covered systems
- g. PSM-covered areas are restricted by security and only those persons with proper clearance and training are allowed in such areas. Construction contractors shall receive PSM overview training if the scope of their work is within a PSM-covered process.

### 5.7 Occupational Health Care and Emergency Services

NASA SSC maintains an Occupational Health Clinic for its employees. The Clinic is staffed with licensed health care professionals that are available to assess employee health status for prevention, early recognition, and treatment of illness and injury. Clinical services provided to civil service employees include pre-placement physical exams, special exams required or certifications, return-to-work physicals, health maintenance physicals for managers, and medicine and immunizations for NASA travel. The NASA SSC Occupational Health Clinic provides services to contractor employees as authorized by their employer. NASA SSC does not require contractor managers to contract medical services from the NASA SSC Clinic.

- a. Those contractors that choose not to use the NASA SSC Clinic shall demonstrate compliance to applicable sections of 29 CFR 1910 and/or 29 CFR 1926.
- b. Health services such as pre-placement physicals, audiograms, and lung function tests shall be included in the services provided by an alternate clinic.
- c. Individuals trained in first aid, cardiopulmonary resuscitation (CPR), and emergency medical care shall be available for all shifts within a reasonable time and distance.
- d. Automated External Defibrillators (AEDs) are located throughout the Center. Training in the proper safe use of AEDs shall be provided by the SSC Fire Department.
- e. Emergency procedures and services including provisions for ambulances, emergency medical technicians, emergency clinics, or hospital emergency rooms shall be available and explained to employees on all shifts.

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- f. NASA SSC shall require new employees who are assigned to test designated positions (TDP) to complete a drug test; additional employees in TDP are randomly tested as a part of the overall drug-testing program.
- g. NASA SSC Occupational Health Clinic exposure control plan and services can be found in SCWI-1800-0003 SSC Bloodborne Pathogens Control Program Common Work Instruction.

### 5.8 Preventive/Predictive Maintenance

NASA SSC, contractors, and construction contractors will established an effective Preventive/Predictive Maintenance (PM) Management Program. This PM Management Program will be used to record, document, schedule, track, and retain records of completed routine maintenance actions to reduce safety-critical equipment failures.

- a. The PM system shall include but is not limited to critical safety devices, life saving equipment, pressure vessels, pressure relief devices, motors, pumps, compressors, hoists, cranes, slings, fire protection systems, fire fighting and shop equipment.
- b. PM item requirements, specifications, and schedules for equipment to be inspected shall be documented in approved detailed instructions and procedures. The approved detailed procedures will contain step-by-step instructions of the tasks to be performed and will include appropriate cautions, warnings, and notes to assist maintenance personnel in the safe completion of the preventative/predictive maintenance tasks.
- c. Requirements and schedules shall be based upon manufacturer recommendations, federal, state, local, or NASA requirements, industry and consensus standards, hazard analyses, etc.
- d. Discrepancies discovered through a Preventive/Predictive Maintenance inspection process shall be documented in the PM program and resolved expeditiously.
- e. The FOS Contractor shall be responsible for the institutional Preventive/Predictive Maintenance program at NASA SSC.
- f. Test Operations Contractor (TOC) and Hardware Assurance Test Contractor (HAT) shall be responsible for the programmatic Predictive/Preventative Maintenance program at NASA SSC.

### 5.9 Tracking of Hazard Correction

This requirement applies to NASA SSC, contractors and construction contractors.

- a. NASA SSC, contractors and construction contractors shall track all corrective actions.

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- b. All hazards and unsafe conditions however identified (i.e., self-inspections, mishaps, close calls, preventive maintenance, safety work requests, Safety Committee recommendations, emergency drill critiques, Process Hazard Analysis (PHA) recommendations, safety audits, or other means) shall be documented.
- c. Corrective actions shall be expeditiously pursued to correction. Documentation and tracking the corrective action to completion is assigned to the organization responsible for the area. Completed corrective action records will be retained and managed as records.
- d. The corrective action tracking system shall include methods for recording and prioritizing hazards, assigning responsibility, timeframes for correction, interim protection, and follow-up to ensure abatement.
- e. Each organization shall use the Facility Manager database located on the SSC portal web page for corrective actions involving safety work requests and self-inspections.
- f. The IRIS shall be used to track mishap and close call investigations submitted by NASA and contractor S&MA personnel for non-commercial operations. Maximo or similar programs are acceptable for the notification and tracking of preventative maintenance corrective action tracking.
- g. Other software programs shall be used to track all remaining actions that arise from safety and health processes.

### 5.10 Emergency Preparedness

- a. Emergency preparedness procedures shall be defined in SPLN-1040-0006, Emergency Management Plan.
- b. NASA SSC contractors and construction contractors shall establish additional emergency preparedness plans as needed and appropriate for their work.
- c. The emergency procedures specific to NASA SSC, its contractors and construction contractors shall be communicated and practiced annually.
- d. NASA SSC its contractors and construction contractors shall perform drills at times appropriate to the performance of work so as not to create additional hazards.
- e. Coverage of critical operations shall be provided so that all employees have an opportunity to participate in evacuation drills.

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- f. Documentation and critique of evacuation drills and recommendations for improvement shall be completed and corrective actions tracked to completion.

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## CHAPTER 6. TRAINING

### 6.1 New and Transferred Employees

- a. NASA SSC and its contractors and construction contractors shall have an effective safety and health training program for orientation and job safety training of new and transferred employees.
- b. Minimum training program requirements are:
  1. A training matrix establishing the training required for each position.
  2. An orientation checklist that provides documentation of the training topics and instructions provided.
  3. Tracking systems to register training and instruction completed.
  4. Recordkeeping systems for maintaining and retrieving training documentation.
  5. Periodic review and update of training information.
- c. The new and transferred employee training orientation shall include:
  1. A review of on-the-job hazards, current programs and processes in place that will help protect the employee.
  2. Specific safety and health requirements for the area/job.
  3. Employee's rights for a safe and healthy workplace.
  4. OSHA and other required safety and health training.
  5. Safe behavior and work habits expected as a condition of employment.
  6. A method to verify that the employee understood key points of the orientation training and signatures of instructor(s) and of the employees in attendance.
  7. OSHA VPP and Safety Policy.
- d. The NASA Office of Human Capital shall manage the safety and health orientation process for NASA SSC Civil Service employees.
- e. NASA SSC, contractors and construction contractors orientation training programs for new and transferred employee shall be managed and organized such that training records can be reviewed and assessed for attendance verification, training requirements and for auditing purposes.
- f. Construction contractors shall maintain their safety orientation training documentation and make the documentation available for review by NASA SMA.
- g. All new employees are required to complete the safety and health orientation training programs within the first 30 days of employment.

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## 6.2 Regulatory and Refresher Training

- a. Safety and health training shall address the safety and health responsibilities of all NASA SSC personnel, whether salaried or hourly. It is often most effective when incorporated into performance requirements and job practices training. Its complexity depends on the size and complexity of the worksite, the nature of the hazards, and potential hazards at the site.
- b. NASA SSC and its contractors and construction contractors shall identify all training required by position, group, discipline and/or area. This requirement includes but is not limited to OSHA and other necessary safety and health training.
- c. NASA SSC will identify specific courses which employees must complete to become certified to perform particular jobs or tasks prior to assignment of those duties.
- d. Certification training requirements shall be documented in a format that can be accessed to determine annual training needs.
- e. All personnel performing work at SSC, or performing processes having a significant effect on product quality and/or involving hazardous and/or critical NASA operations, shall be properly certified in the area in which they work.
- f. All SSC personnel working in occupational categories listed in SCWI-3410-0003, Training/Certification Plan and Schedule Report, shall have current Hazardous Operation Safety certification as specified in that instruction.
- g. Personnel shall acquire and maintain the appropriate qualifications including comprehension of the skill and/or operation, excellence of workmanship/skill, and physical ability.
- h. SSC safety officials or their designees may also require additional operation safety certifications over and above these basic requirements.
- i. SSC safety officials or their designees shall maintain the right to require additional operation safety certifications over and above these basic requirements listed in 6.2 (f) above.
- j. NASA SSC, contractors and construction contractors shall establish an annual training plan and disseminate the plan to all management and employees at the start of every year.
- k. A tracking system shall be established to document attendance and the completion of all training required in the annual training plan.

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### 6.3 Training Records Management

The Training Management System shall include the following:

1. Training records.
2. Documentation of training including attendees, date, time, instructor, and location.
3. An outline for each training course.
4. Handouts and other training materials provided to employees.
5. Tests or other means to document employees' understanding of training requirements.

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ACGIH	American Conference of Governmental Industrial Hygienists
AED	Automated External Defibrillators
AIHA	American Industrial Hygiene Association
AOA	Annual Operating Agreement
CCRS	Close Call Reporting System
CFR	Code of Federal Regulations
CM	Configuration Management
CO	Contracting Officer
COTR	Contracting Officer Technical Representative
CPR	Cardiopulmonary Resuscitation
DCMA	Defense Contract Management Agency
EOC	Emergency Operations Center
FOS	Facility Operating Services
FOSC	Facility Operating Service Contract
FRI	Facility Risk Indicator
HAT	Hardware Assurance Test Contractor
HP	Health Physics
IH	Industrial Hygiene
IRIS	Incident Reporting Information System
JHA	Job Hazard Analysis
MIB	Mishap Investigation Board
NASA	National Aeronautics and Space Administration
NF	NASA Form
NPR	NASA Procedural Requirement
NSRS	NASA Safety Reporting System
OM	Occupational Medicine
OPR	Office of Primary Responsibility
ORA	Operational Readiness Assessment
OSHA	Occupational Safety and Health Administration

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PEL	Permissible Exposure Limit
PHA	Process Hazard Analysis
PPE	Personal Protective Equipment
PSM	Process Safety Management
SMA	Office of Safety and Mission Assurance
SPLN	Stennis Space Center Plan
SPR	Stennis Space Center Procedural Requirements
SSC	John C. Stennis Space Center
STARS	Striving to Achieve Real Safety
TDP	Test Designated Positions
TLV	Threshold Limit Values
TOC	Test Operations Contractor
VPP	Voluntary Protection Program