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John C. Stennis Space Center
Stennis Space Center, MS 39529-6000

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COMPLIANCE IS MANDATORY

John C. Stennis Space Center
Safety and Health Program Requirements

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Document History Log

Status/ Change/ Revision	Change Date	Originator/Phone	Description
Basic	01/27/1998		Initial Release. New version to replace NASA SSC HB 1700.3B Safety Manual, dated November 1, 1989
A	05/15/2006	Nick Cenci 8-1531	Complete major revision and reformatting to new documentation standard. Title changed from Safety and Health Manual to Safety and Health Procedural Requirements. Change in terminology from SPG to SPR. Replaces SPG 8715.1
B	06/09/08	Kenneth Volante 8-2834	Completed major revision of SPR 8715.1 so that all sections are aligned with the Voluntary Protection Program Safety Management System. In addition, a title change was made. Safety and Health Procedural Requirements has been changed to Safety and Health Program Requirements.
C	03-22-10	Dan Brady 8-1187	Administrative corrections and clarifications to all sections.
C-1	10-27-10	Dan Brady 8-1187	Administrative change only.
D	04-29-16	Kamili Shaw 8-3025	The entire document was reworded for clarity, correction of grammar and spelling, some cleanup of sentence structure, update of directorate and office names as needed, and update of obsolete terms. In addition, redundancies were deleted when possible; the most relevant documents were referenced; specific contract names, i.e. FOSC, were changed to be general; and where development and establishment of programs or processes are complete, “develop” and “establish” were deleted. Finally, the Center Operations Directorate functions were explicitly included in this document. Chapter 2: 2.4 Consolidated the majority of leadership

			responsibilities under 2.4.5 All Management Roles Chapter 5: 5.5 Added Hazardous and Safety Critical Procedures and Use of the Buddy System. 5.6 Added Maximum Work Policy. 5.13 Added Variances from Safety Requirements. Appendix B: Added list of safety and health requirements and work instructions.

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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 safety and health 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 the specific NASA SSC Work Instructions listed in Appendix B and SSP-8715-0001, *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 contractors to the extent specified by their respective contractual documents as defined within sections of this document.

c. SSC tenants should implement a safety and health program that appropriately covers their respective operations. This SPR is applicable to SSC tenants as specified in their host tenant agreement or Space Act Agreement, whichever applies.

d. 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 1910*, Occupational Safety and Health standards*

b. 29 CFR 1926*, Safety and Health Regulations for Construction*

c. 29 CFR Part 1960*, Basic Program Elements for Federal Employees Occupational Safety and Health Administration (OSHA)*

d. NPD 1800.2*, NASA Occupational Health Program*

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e. NPD 5101.32*, Procurement, Financial Assistance*

f. NPD 8700.1*, NASA Policy for Safety and Mission Success*

g. NPD 8710.1*, Emergency Management Program*

h. NPR 1800.1*, NASA Occupational Health Program Procedures*

i. NPR 8000.4*, Agency Risk Management Procedural Requirements*

j. NPR 8621.1*, NASA Procedural Requirements for Mishap and Close Call Reporting, Investigating, and Recordkeeping*

k. NPR 8715.1. *NASA Occupational Safety and Health Programs*

l. NPR 8715.2*, NASA Emergency Management Program Procedural Requirements*

m. NPR 8715.3*, NASA General Safety Program Requirements*

n. SPD 8715.4, *SSC Safety and Health Policy*

P.4 APPLICABLE DOCUMENTS

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

a. 29 CFR 1960*, Basic Program Elements for Federal Employees OSHA*

b. 29 CFR 1977*, Discrimination Against Employees Under the Occupational Safety and Health Administration Act of 1970*

c. 49 CFR 571*, Federal Motor Vehicle Safety Standards*

d. CSP 03-01-003*, Voluntary Protection Programs (VPP): Policies and Procedures Manual*

e. EO 12196*, Occupational Safety and Health Programs for Federal Employees*

f. NASA-STD-8719.7*, Facility System Safety Guidebook*

g. NPR 1441.1*, NASA Records Management Program Requirements*

h. NPR 8621.1, *NASA Procedural Requirements for Mishap Reporting, Investigating and Recordkeeping*

i. NPR 8820.2, *Facility Project Requirements*

j. SCWI-1800-0003, *Bloodborne Pathogens Control Program*

k. SCWI-1840-0002, *SSC Local Exhaust Ventilation for Health Hazard Control*

l. SCWI-3410-0003, *SSC Training/Certification Plan and Schedule Report*

m. SCWI-3752-0001, *Disciplinary and Adverse Actions*

n. SCWI-8500-0018-ENV, *Lead and Other Hazardous Coatings Hazard Control Plan*

o. SCWI-8710-0001, *SSC Systems Safety and Health*

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

q. SCWI-8715-0001, *SSC Lightning Warning System*

r. SCWI-8715-0002, *Personal Protective Equipment*

s. SCWI-8715-0005, *SSC Safety Health, Housekeeping and Essential Item Inspections*

t. SCWI-8715-0008, *Construction Safety and Health Program*

u. SCWI-8715-0010, *Process Safety Management Program*

v. SCWI-8715-0016, *SSC Close Call Reporting System (CCRS)*

w. SCWI -8715-0017, *SSC R-4403 Restricted Airspace Scheduling and Activation Procedures*

x. SPD 8715.1, *SSC Operational Readiness Program*

y. SPD 8715.8, *SSC Visitor Safety Policy*

z. SPLN-1040-0006, *SSC Emergency Management Plan*

aa. SPLN-1200-0003, *SSC SMA Technical Authority Implementation Plan*

bb. SPLN-8621-0003, *SSC Mishap Preparedness and Contingency Plan*

cc. SSP-8715-0001, *SSC Safety and Health Handbook*

dd. SOI-8040-0001-FACENG, *SSC Organization Instruction Construction Configuration Management*

ee. SPR 1400.1, *Document Preparation, Numbering, and Management*

ff. SPR 1440.1, *SSC Records Management Program Requirements*

gg. SPR 1600.1, *SSC Security Requirements Handbook*

hh. SPR 1740.1, *Pressure Vessel and Pressurized System Procedural Requirements*

ii. SPR 7120.1, *SSC Risk Management Procedural Requirements*

jj. SPR 8715.2, *SSC Operational Readiness Program Procedural Requirements*

kk. SPR 8715.7, *SSC Range Safety Program*

ll. SPR 8730.1, *Control of Nonconforming Product*

mm. SSTD-8070-0007-CONFIG, *Variance and Alternate Standard Requests*

nn. *A Strategy for Assessing and Managing Occupational Exposures, American Industrial Hygiene Association*

oo. *Guide to Occupational Exposure Values, American Conference of Governmental Industrial Hygienists (ACGIH)*

pp. *Documentation of the Threshold Limit Values and Biological Exposure Indices, ACGIH*

qq. *Industrial Ventilation: A Manual of Recommended Practice, ACGIH*

P.5 MEASUREMENT/VERIFICATION

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) Directorate with a copy to the Center Operations Directorate.

NASA and its on-site prime contractors submit an annual safety and health review to be included in the VPP Self-Evaluation. This evaluation is submitted to the Occupational Safety and Health

Administration (OSHA) annually. The NASA SSC safety and health review will include construction safety. The reviews include the implementation status of all applicable OSHA regulations, VPP practices, and injury/illness reporting requirements.

NASA and its prime contractors submit monthly status reports of injury/illness statistics, safety training, property damage, mishaps, and close calls at the Center Director's Safety Management Review (SMR) meetings.

P.6 CANCELLATION

SPR 8715.1, Revision C-1 dated October 2010,

Signature on file

Richard J. Gilbrech, Ph.D.
Director

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CHAPTER 1. INTRODUCTION

1.1 General Requirement

This document has been prepared to be consistent and compliant with federal statutory codes and regulations, executive orders, and NASA directives and standards. The requirements listed herein supplement those requirements.

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.

c. Chapters two (2) through six (6), respectively, provide the specific requirements for:

   (1) Management Commitment
   (2) Employee Involvement
   (3) Worksite Analysis
   (4) Hazard Prevention and Control
   (5) Training

d. Each chapter contains the specific individual requirements for the given subject area. Specific NASA SSC Work Instructions contain detailed information, such as figures, illustrations, tables, charts, etc., that pertain to specific safety and health procedures. Individual work instructions have further statements of applicability.

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CHAPTER 2. MANAGEMENT COMMITMENT AND RESPONSIBILITIES

2.1 Commitment

SPD 8715.4, *SSC Safety and Health Policy,* defines management commitment.

2.2 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. Identify and manage risk; identify and mitigate hazards.

d. Effective safety and health training is paramount.

e. Employment depends upon working safely, following procedures, abiding by rules, knowing safety requirements, and watching out for others.

f. An effective safety and health program that ultimately contributes to mission success will add value by reducing risks, preventing mishaps, and protecting employees.

g. 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.

2.3 Visible Top Management Organization

a. The NASA SSC Center Director, along with the Deputy and Associate Director, 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) Center Operations Directorate
(2) Engineering and Test Directorate
(3) Safety and Mission Assurance Directorate
(4) Office of Chief Counsel
(5) Office of the Chief Financial Officer
(6) Office of Communications
(7) Office of Diversity and Equal Opportunity
(8) Office of Education
(9) Office of Human Capital

(10) Office of Procurement

b. The above directorates and offices are responsible to varying degrees for the oversight of NASA SSC, its prime contractors, and NASA direct construction contractors. Safety responsibilities are delegated to each of the directorates and offices as applicable.

c. Directorates and offices are staffed with deputy directors, division chiefs, lead positions, professional and technical support, and administrative personnel, as appropriate. The organizational structures of the contractors are unique to their organizations.

d. Operations managers, line managers, and technical managers may be assigned the responsibility for facility management of programmatic facilities, including elements of the safety and health program within the facility.

e. Facility Managers serve as the points of contact and coordinators for all activities that affect the building from both internal and external sources. They are responsible for coordinating the building's emergency preparedness program. Facility managers are responsible for compiling and reporting safety, health, and facility management issues. They are also responsible for ensuring identified risks are mitigated.

f. Within the Office of Procurement, Contracting Officers (CO) are the only personnel with the authority to obligate the Federal Government. Contracting Officer Representatives (COR) from the directorate or office that owns the requirements provide technical support to the CO and provide surveillance during the contract performance.

g. The Center Director grants authority to the SMA Directorate to monitor and evaluate the Safety and Health Program including the achievement of safety goals.

h. The Center Director grants authority to the Center Operations Directorate to manage the Industrial Hygiene, Environmental, Occupational Health, Wellness, Fire Protection/Prevention, and Emergency Response Programs.

i. SMA and Center Operations Directorate personnel, and Facility Managers, work through the CO and the COR to interact directly with prime contractors and NASA direct construction contractors. Center Operations Directorate personnel interact directly with tenants.

2.4 Responsibilities and Authority

2.4.1 Center Director

The Center Director shall:

a. Lead the effort to maintain OSHA VPP standards.

b. Approve the content of and chair the SMR meetings. The monthly SMR statuses the overall state of safety at SSC. NASA management, contractor general managers, or their delegates present incident statistics and trend analysis as well as the status of programs and significant safety actions. In addition, organizations share lessons learned and general safety tips.

2.4.2 Deputy Director and Associate Director

The Deputy and Associate Directors shall:

a. Support the Center Director in maintaining OSHA VPP Star Site standards.

b. Assure provision of resources, guidance, and direction for maintaining the NASA SSC Safety and Health Program.

c. Ensure NASA SSC has independent safety and health organizations to assist in maintaining NASA SSC Safety and Health Program. Each project and program must include safety and health personnel at appropriate levels and adequate personnel within its teams to carry out the NASA SSC Safety and Health Program.

d. Ensure resources for specialized expertise from other sources are available as necessary.

e. Provide adequate funding and oversight to all NASA SSC organizations to accomplish effective safety and health programs, including training.

f. Verify NASA SSC has requirements and procedures to establish and conduct effective safety and health programs.

g. Review and approve priorities for correcting workplace hazards, if needed.

2.4.3 Directors, Deputy Directors, Managers, and Deputy Managers

Directors, Deputy Directors, Managers, and Deputy Managers, or their delegates, shall participate in the SMR meetings.

2.4.4 Division Chiefs, Branch Chiefs, and Deputy Chiefs

Chiefs, Deputy Chiefs, and Branch Chiefs shall:

a. Serve as the Safety and VPP Champion for respective areas of responsibility.

b. Initiate the enforcement of NASA SSC Safety and Health rules and requirements.

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c. Consider safety and health in performance reviews for supervised employees during the performance appraisal process.

d. Use employee incentive programs to recognize excellent safety performance.

e. Facilitate Safety and VPP responsibilities to drive continuous improvement.

f. Support the performance of Job Hazard and Industrial Hygiene Analyses.

2.4.5 All Management Roles

All Management Roles including the Center Director, Deputy Director, Associate Director, Directors, Deputy Directors, Managers and Deputy Managers, Chiefs, Deputy Chiefs and Branch Chiefs, and Leads shall:

a. Assure compliance with applicable sections of NPR 8715.1, *NASA Occupational Safety and Health Program*, and NPR 8715.3, *NASA General Safety Program Requirements*.

b. Actively promote VPP among their staff and support employee safety committees by assigning personnel to participate.

c. Demonstrate commitment and support for employee involvement programs.

d. Provide leadership to achieve safety and health metric goals and other safety and health performance objectives, and provide safety and health metrics as requested to the Center Director, Deputy Director and Associate Director.

e. Lead by example by ensuring safety is the first subject covered in department meetings, personally adhering to all safety rules, regulations, and practices, and leading safety and health activities as requested.

f. If assigned, perform designated duties in the Emergency Operations Center (EOC) when the EOC is activated or required to meet for test, training, and evaluation purposes.

g. Maintain safety awareness and conduct special meetings to cover critical information.

h. Ensure all employees under their responsibility are current with applicable safety training.

i. 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.

j. Verify the workplace safety inspection process is working and hazards are being corrected in areas of responsibility.

k. Ensure all employees who work in Process Safety Management (PSM) covered areas receive the appropriate PSM overview training.

l. Enforce and reinforce NASA SSC Safety and Health Program rules and requirements.

m. Monitor staff performance to ensure compliance with their responsibilities regarding rules, regulations, and practices; and assure safety performance is an integral part of the annual performance review for all department personnel.

n. Monitor, support, and manage the applicable elements of the NASA SSC contractor and construction contractor safety program.

o. Be knowledgeable of the maximum work policy outlined in section 5.6 of this document and NPR 1800.1, *NASA Occupational Health Program Procedures.*

p. Be knowledgeable of employee rights and responsibilities in this document and in federal laws and communicate those rights and responsibilities to employees as applicable to their position. Federal laws include but are not limited to the Executive Order 12196, *Occupational Safety and Health Program for Federal Employees;* 29 CFR 1960, *Basic Program Elements for Federal Employees OSHA;* and 29 CFR 1977, *Discrimination Against Employees Under OSHA Act of 1970*.

2.4.6 Facility Managers and Operations Managers

Facility Managers and Operations Managers shall:

a. Assure compliance with applicable sections of NPR 8715.1, *NASA Occupational Safety and Health Program*, and NPR 8715.3, *NASA General Safety Program Requirements*.

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 (SMEs), 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.

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2.4.7 Prime Contractor General Managers

On-site Prime Contractor General Managers, consistent with the requirements stated/referenced in their particular contracts, 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 and subcontractors.

c. Ensure flow down of all safety and health requirements to subcontractors.

d. Participate in the monthly SMR meetings and present the following:

   (1) The status of safety and health corrective actions resulting from inspections, audits, and reviews from outside agencies
   (2) The injury/illness incident rates and incident summaries
   (3) The status of any ongoing mishap investigations
   (4) The status of maintaining or achieving VPP Star, including the status, on VPP actions
   (5) The status of safety training and certifications

e. Promote a strong safety policy through staffing, resources, and by setting priorities.

f. Develop and maintain VPP standards as applicable.

g. Monitor and reinforce 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. Submit an Annual Safety and Health Self-Evaluation to NASA SMA, with a copy to NASA Center Operations, 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.

l. Enforce safety and health rules in accordance with the company work practices and policies.

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2.4.8 All NASA SSC Personnel

NASA SSC personnel shall:

a. Participate in maintaining a workplace environment free from recognized safety and health hazards.

b. Comply with applicable sections of NPR 8715.1, *NASA Occupational Safety and Health Program*, and NPR 8715.3, *NASA General Safety Program Requirements*, especially as related to a technical or professional responsibility.

c. Participate in random and regular workplace safety inspections when solicited.

d. Understand and implement PSM requirements if work duties are performed in PSM covered areas.

e. Comply with all safety and health standards, rules, regulations, and guidelines issued by the OSHA, NASA SSC, NASA and all other applicable governmental organizations.

f. Participate in safety meetings and activities as required.

g. Attend and complete safety training as assigned or required.

h. Actively engage in all assigned safety responsibilities.

i. Report all mishaps, including first aid injuries, close calls, and property damage, to supervisors.

j. Adhere to all applicable sections of NASA SSC, contractor, and construction contractor safety programs.

k. Perform all assigned responsibilities in support of the NASA SSC, contractor, and construction contractor safety programs.

l. Ensure visitors are escorted, briefed, and aware of the hazards and requirements associated with the areas they visit.

m. Work in a manner that helps achieve safety and health metric goals and other safety and health performance objectives.

n. Understand the safety and health requirements of assigned work, including using required engineering controls, administrative controls, and personal protective equipment (PPE).

o. Recognize alarms, maintain knowledge of evacuation procedures, and understand the appropriate response to alarms.

p. Support maintaining SSC as a VPP star site through involvement in safety and health activities.

q. Use established procedures to report and correct hazards, mishaps, and close calls.

r. Obtain medical care in the event of a job-related injury or illness and report occurrence to assigned supervisor.

s. Cooperate with safety and health personnel during audits, inspections, surveys, and investigations.

t. Be knowledgeable of employee rights and responsibilities from this document and federal laws (such as Executive Order 12196, *Occupational Safety and Health Programs for Federal Employees;* 29 CFR 1960, *Basic Program Elements for Federal Employee* OSHA; and 29 CFR 1977, *Discrimination Against Employees Under OSHA Act of 1970*).

2.4.9 Safety and Mission Assurance Directorate

The Safety and Mission Assurance Directorate 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 Safety and Mission Assurance Directorate shall:

a. Assure compliance with applicable sections of NPR 8715.1, *NASA Occupational Safety and Health Program* and NPR 8715.3, *NASA General Safety Program Requirements*.

b. Review and approve the type and frequency of safety and health metrics that will be used to drive improvement.

c. Retain the Office of Primary Responsibility for this document and its requirements for NASA SSC while sharing responsibility with the Center Operations Directorate.

d. Provide risk analysis support to the SSC Center Director and identify priorities per SPR 7120.1, *SSC Risk Management Procedural Requirements*.

e. 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 and health as applicable to their operations.

f. Provide technical support to NASA SSC operations.

g. 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.

h. Ensure that approved safety training is developed and provided for NASA SSC employees.

i. Establish a safety certification and training program with associated requirements for SSC.

j. Monitor and evaluate NASA SSC prime contractors and NASA direct construction contractors' safety performance annually at least annually. Hold meetings with the COR and CO as needed to review positive or negative safety findings and violations of OSHA, NASA SSC, or contractual requirements.

k. Assist in the review of prospective contractor's safety and health programs and plans prior to the final selection of prime contractors and NASA direct construction contractors.

l. Participate in the acquisition process for the selection of NASA prime contractors and NASA direct construction contractors.

m. Complete an annual VPP Self-Evaluation of NASA SSC operations; and develop goals and objectives for the coming year based upon the results of the annual VPP Self-Evaluation and upcoming challenges.

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. Monitor and reinforce safety and health rules, regulations, and practices within NASA SSC, its 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 and health goals, objectives, and projects.

r. Perform the executive secretary function for SMR and participate in the SMR meetings.

s. Participate in safety committees such Striving to Achieve Real Safety (STARS).

t. Participate in weekly construction safety reviews.

u. Coordinate with the lead organization to review and sign off on specifications and drawings with a focus on sensitive items. In addition, disposition the NASA Form (NF) 1707, *Special Approvals and Affirmations of Requisitions*.

v. Participate in Material Review Boards, Configuration Control Boards, Pressure Vessel Committee, Design Reviews, and other related boards as necessary.

w. Perform Job Hazard Analyses (JHAs) when necessary or requested.

x. Verify safety inspection requirements are implemented in the operations of NASA SSC, its contractors, and construction contractors.

y. Establish and maintain an effective PSM program that meets the needs of NASA SSC.

z. Evaluate all NASA and contractor work areas for hazards, and communicate results to management and employees.

2.4.10 Center Operations Directorate

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

The Center Operations Directorate shall:

a. Assure compliance with applicable sections of NPR 8715.1, *NASA Occupational Safety and Health Program* and NPR 8715.3, *NASA General Safety Program Requirements*.

b. Oversee and direct the activities of the IH, HP, OM, and Fire Protection/Prevention Fire Protection/Prevention plans, processes, and systems contractor support.

c. Evaluate all NASA and contractor work areas for hazards, and communicate results to management and employees. Always coordinate communication to contractors through the CO/COR.

d. Advise and provide performance feedback on the activities of the on-site prime contractors with regard to their IH, HP, OM, Wellness and Fire Protection/Prevention responsibilities. Always coordinate communication to contractors through the CO/COR.

e. Maintain selected IH, HP and OM programs such as hearing conservation, respiratory protection, ergonomics, hazard communication, hazardous materials, radiation safety, blood borne pathogens, heat stress and employee/workplace monitoring.

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f. Share responsibility with SMA for this document and its requirements.

g. Provide guidance and support to the NASA line organizations as they maintain the NASA SSC IH, HP, OM, Wellness and Fire Protection/Prevention programs and achieve continuous improvement as applicable to their operations.

h. Participate, appropriately, 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' safety and health requirements.

j. Assist in the acquisition process for the selection of contractors and construction contractors.

k. Participate with SMA in the completion of the VPP Self-Evaluation of NASA SSC operations.

l. Assist with the development of safety and health goals and objectives for the coming year based upon the results of the VPP Self-Evaluation and upcoming challenges.

m. Ensure NASA SSC IH, HP, OM, Wellness and Fire Protection/Prevention records are maintained.

n. Monitor and reinforce safety and health rules, regulations, and practices within NASA SSC, its contractors, and construction contractors through audits and daily observations.

o. Assess needs for resources at least annually and request the necessary funds to meet Center Operations Directorate IH, HP, OM, Wellness and Fire Protection/Prevention responsibilities.

p. Participate in the SMR meetings.

q. Participate in safety committees such as STARS.

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 achieved in NASA operations and those of prime contractors and NASA direct construction contractors.

u. Serve as a resource for the PSM program at NASA SSC.

v. Ensure the responsibilities as defined in SPLN-1040-0006, SSC *Emergency Management Plan,* are fulfilled.

w. Monitor and evaluate the achievement of health goals.

2.4.11 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 NPD 5101.32, *Procurement, Financial Assistance*.

The Office of Procurement shall:

a. Assure compliance with applicable sections of NPR 8715.1, *NASA Occupational Safety and Health Program,* NPR 8715.3, *NASA General Safety Program Requirements,* and this SPR herein, SPR 8715.1 D. Contracts shall require contractor compliance with these requirements by either including the full text of the provisions in solicitations and awarded contracts, or specifically referencing/citing these Procedural Requirements in solicitations and awarded contracts and incorporating them by reference into the contract, making clear that contractors must comply with these requirements as contractual obligations.

b. Direct and monitor the overall administration of the contract, including the use of incentive programs that reward prime contractors and NASA direct construction contractors for excellent safety performance.

c. Ensure contract terms and conditions comply with NASA SSC safety and health policies and procedures. Ensure that solicitations and contracts clearly inform contractors what their obligations are with regard to SSC safety and health policies and procedures. Solicitations and contracts should, at a minimum, cite to and incorporate by reference as contract performance requirements NPR 8715.1, NPR 8715.3, and SPR 8715.1 D; and always cite to/reference the most recent revision of the particular Procedural Requirement.

d. Serve as the primary contact for resolution of contractual issues concerning safety and health requirements.

e. Participate in SMR meetings.

f. Fulfill the safety and health responsibilities as outlined in documents such as SCWI-8715-0008, *Construction Safety and Health Program,* and SOI-8040-0001-FACENG, *SSC Organization Instruction Construction Configuration Management.*

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 ongoing training.

b. Provide for safety availability, on site or on call, for all shifts.

c. Review safety and health budgets annually and provide resources to ensure a 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, as necessary and appropriate, from other Centers to assist in the investigation of mishaps and other incidents.

2.6 Goals, Objectives and Planning

a. The NASA SSC overall safety and health management planning process is based on the VPP Annual Self-Evaluation and Trend Analysis and includes safety and health as the core element. The SMA and Center Operations Directorates will lead the safety and health goals and planning process for NASA SSC.

b. SMA, with inputs from the Center Operations Directorate, proposes the safety and health goals each year and documents them in the annual VPP Self-Evaluation. SMA, the Center Operations Directorate, Engineering and Test Directorate, Office of Human Capital, and Office of Procurement approve the goals during the VPP Self-Evaluation review process. In addition, the Center Director, Deputy Center Director, and Associate Center Director also review and give final approval of the self-evaluation and goals.

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 and health metrics that will be used to measure progress for all of SSC in the coming year
(2) The provision of adequate resources for managing safety and health challenges in the coming year, e.g., 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 safety culture
(4) The communication of goals and objectives to all NASA employees and on-site prime contractor general managers
   (a) It is expected that on-site prime contractors will use the information to adjust goals, plan safety and health efforts, and communicate them to their workforce.

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 document the findings of all safety and health evaluations.

b. The VPP Self-Evaluation shall be submitted to OSHA annually by the 15th day of February.

c. Applicable on-site prime contractors shall submit a draft of their VPP Self-Evaluations by December 15th of every year. The draft version is to contain all information except for final calculations for injury and illness data. A final version of the VPP Self-Evaluation shall be submitted no later than January 10th of the following year.

d. The SMA Directorate shall complete, publish, and distribute the annual VPP Self-Evaluation.

e. NASA SSC personnel shall support the SMA Directorate in the completion of the VPP Self-Evaluation.

f. NASA SSC or other private sector organizations, which are trained or experienced in the evaluation of safety and health programs, may conduct the evaluation.

g. The evaluation shall follow the format, guidelines, and requirements specified by OSHA VPP, Region IV and CSP 03-01-003, *Voluntary Protection Program (VPP): Policy and Procedures Manual*.

2.7.2 Process for Program Evaluation

a. NASA SSC SMA shall utilize VPP Self-Evaluation 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 the VPP Self-Evaluation of the previous year.
(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 the safety and health performance of the current year by using:

(a) Interviews with SMEs
(b) OSHA compliance checks
(c) Self-audits and inspections
(d) Review of the Construction Safety Program including all incidents and findings
(e) Review of the results of NASA self-assessments and surveys
(f) Any available metrics of injury/illness statistics or inspection data
(g) Investigation and trend data
(h) Other methods as appropriate

2.7.3 Publishing and Distribution

Prior to publication of the VPP Self-Evaluation report, SMA shall:

a. Ensure all Center directorates and offices supply input and have the opportunity to comment on the report.

b. Obtain approval signatures from:

(1) NASA SSC Center Director
(2) NASA SSC Deputy and Associate Director
(3) Center Operations and SMA Directors
(4) Office of Human Capital
(5) Office of Procurement

After publication of the VPP Self-Evaluation report, SMA shall:

a. Post the final report on the NASA SSC Safety and Health Web page.

b. Incorporate the results of the VPP Self-Evaluation into the yearly OSHA report to NASA Headquarters.

c. Make the VPP Self-Evaluation accessible to NASA Headquarters upon request.

2.7.4 Safety and Health Records

Safety and health program records shall be maintained in accordance with NPR 1441.1, *NASA Records Management Program Requirements;* 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 NASA direct construction contractors shall be subject to a safety and health selection and review process that accounts for the type of contract, scope of work, applicable governmental regulations, and NASA procurement policies and specification requirements.

a. Safety and health requirements, including work instructions, shall be made available for review to the extent required per their respective contracts. These requirements and specifications shall hold contractor employers accountable to provide protection to their workers equal to the protection NASA provides to its civil service employees.

b. NASA SSC SMA and the Center Operations Directorate are directly involved in reviewing the safety and health qualifications of NASA prime contractors and NASA direct construction contractors. Those sub-contractors that are not directly reviewed by NASA SSC shall undergo a similar evaluation by the approved NASA on-site prime contractor or NASA direct construction contractor.

c. Contractors shall submit all information as specified in the contractor specifications and solicitation and offer documents for review by NASA in the evaluation and selection process.

d. Safety plans, health plans, and evaluation documents shall be maintained with the contract documentation.

e. 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 audits.

2.8.2 Oversight and Management

a. The CO and COR shall oversee the contract and its effective management with regard to safety and health. SMA and the Center Operations Directorate shall serve as the primary auditors of safety and health performance.

b. On-site prime contractors shall develop, implement, and maintain safety and health procedures (work instructions) that meet or exceed governmental requirements.

c. Where NASA SSC risks dictate, NASA shall specify or highlight any additional safety and health requirements deemed necessary for the purpose of standardization or emphasis in addition to the OSHA requirements.

d. On-site prime contractors shall:

(1) Participate in NASA safety and health committees and meetings.
(2) Use the NASA 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) Orient 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 employees in safety and health processes.
(15) Take appropriate action for violations of safety and health rules, practices, and/or procedures.

e. NASA direct construction contractors shall:

(1) Follow all requirements of SCWI-8715-0008, *SSC Construction Safety and Health Program,* 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 requires 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 NASA direct construction contractors at NASA SSC.

b. NASA direct construction contractors shall be audited and evaluated as outlined in SCWI-8715-0008, *SSC Construction Safety and Health Program*.

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 contractors and construction contractors. This commitment is demonstrated through NASA SSC employee involvement opportunities required of contractors and construction contractors.

b. Employee involvement opportunities 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
(7) Participation in SSC Safety Day or similar activity

3.1 Safety and Health Committees and Councils

a. NASA SSC has established a Safety Management Review (SMR) 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. Information presented includes, but is not limited to, data on mishaps and close calls, mishap investigations, training attendance, general safety topics and tips, and VPP action status.

b. NASA SSC supports, promotes, and provides resources for an employee organized and controlled safety and health committee. The committee, named the Striving to Achieve Real Safety (STARS) committee, is comprised of NASA SSC, tenant, and contractor employees. This committee meets on a monthly basis. The overall goal of the STARS committee shall be to promote safety and health site-wide.

c. Each NASA SSC prime contractor shall have its 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 VPP Executive Steering Committee 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 activities at SSC, and meets on a periodic basis.

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e. The Motivating OSHA VPP Readiness Successfully (MOVERS) team assists and educates civil servants and smaller support contractor employees in their role of maintaining VPP recognition. MOVERS also provides a forum to discuss safety and health concerns.

f. The Engineering and Test Directorate (E&TD) has established an E&TD Employee Safety Committee. The committee has developed a comprehensive SSC Test Complex Safety, Security, and Health Information Resources website and meets once a month to discuss safety topics relevant to the E&TD Directorate.

3.2 Employee Workplace Safety Meetings

a. Employee workplace safety meetings shall be conducted by NASA SSC, its prime contractors, and NASA direct 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 target NASA SSC, its contractors, and construction contractors.

3.4 Contractor "Toolbox" Meetings

a. NASA's direct construction contractors shall provide and conduct weekly safety meetings, commonly referred to as "toolbox" meetings, to instruct and promote construction site safety.

b. NASA's contractors in the shop areas shall provide and conduct weekly safety meetings, commonly referred to as "toolbox" meetings, to instruct and promote shop safety.

c. Documentation of these meetings shall be available for review by NASA SMA and IH.

3.5 Close Call Program

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. The close call program is promoted through posters and by each on-site resident contractor. Refer to Section 4.5.2 for more details on how to report a close call.

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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 or a qualified on-site or off-site IH contractor 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 IH.

b. The Baseline (and revised/updated) IH Hazard Analysis shall be submitted to NASA SSC IH for review and acceptance.

c. Each NASA prime contractor shall have a comprehensive IH Program based upon the IH Hazard Analysis. NASA direct construction contractors, if specified in their contract requirements, shall have a comprehensive IH Program. Comprehensive IH Programs shall include:

   (1) An annual sampling strategy
   (2) Sampling, analysis and documentation that comply with accepted professional IH practice
   (3) Laboratory analysis of IH samples performed by a laboratory accredited for the analysis by the AIHA
   (4) Determination of OSHA Permissible Exposure Limits, the latest annual edition of the ACGIH Threshold Limit Values (TLVs), or other available exposure guidelines

(5) Application of TLV for a specific substance 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

d. The IH Baseline Analysis will be reviewed annually and updated (as necessary) 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 used as a mission-based process during the facility acquisition or modification/construction phase at NASA SSC.

b. System safety shall also be performed for projects with additional attention to modifications of facilities or systems to accommodate the project. The safety achieved in a system is dependent upon the application of safety principles during the requirements development, planning, design, construction, activation, operation, and disposal phases of each system and facility.

c. NASA SSC System Safety Program is described in SCWI-8710-0001, *SSC Systems Safety and Health*.

d. The System Safety program is guided by the completion of hazard analysis and resulting risk assessments performed for facility acquisition, modification/construction work, and other hazardous operations. The following shall be required:

(1) Hazard Analyses shall be used to assess hazards and resulting risks.
(2) Facility Risk Indicators (FRI) shall be conducted per NASA-STD-8719.7, *Facility System Safety Guidebook,* using center facility information. FRIs shall be considered during safety and resulting risk assessments.
(3) When a risk to human life, equipment, or the environment cannot be eliminated, the organization's management shall ensure adequate steps are taken to control or mitigate the risk.
(4) Safety and risk assessments shall be performed in accordance with SPR 7120.1*, SSC Risk Management Procedural Requirements*.
(5) Safety and risk assessments shall be managed by SMA.
(6) Management shall make decisions regarding overall risk using risk assessment estimates of future losses and the effectiveness of additional controls.

(7) Safety of operations issues associated with range activities shall be managed by SMA and in accordance with SPR 8715.7, *SSC Range Safety Program,* and SCWI -8715-0017, *SSC R-4403 Restricted Airspace Scheduling and Activation Procedures*.

(8) NASA SSC personnel shall conduct an Operational Readiness Assessment (ORA) per SPR 8715.2, *SSC Operational Readiness Program Procedural Requirements*, to support facility activation and test project activation/test.

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

a. NASA SMA and IH shall be involved in the design, modification, and review of new processes and construction, process changes, facility modifications, and new operations.

b. NASA SMA and IH shall participate as necessary on Design Review Boards.

c. NASA SMA and IH, as applicable, shall have signatory requirements on design packages before the packages are released.

d. Hazards deemed high risk or critical risks shall be presented, tracked, and mitigated and/or accepted by the senior SSC management before the start-up of any process, facility or test.

e. Residual risks for hazards that are accepted shall be documented. Procedures for risk ranking and acceptance are located in SCWI-8710-0001, *SSC Systems Safety and Health*.

f. When changes occur in PSM covered areas, all design, modification, and reviews shall be subject to PSM requirements.

4.3 Hazard Analysis of Routine and Non-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 (AHA) and the second is a Job Hazard Analysis. Procedures or work instructions that describe the AHA and JHAs shall be developed and maintained by NASA SSC, its prime contractors, and NASA direct construction contractors.

4.3.1 Activity Hazard Analysis (AHA)

a. An AHA 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 SSC, its prime contractors and NASA direct construction activities, and shall be completed prior to the start of work.

b. The Activity Hazard Analysis resembles a work permit system and is commonly referred to as a Pre-use Analysis.

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4.3.2 Job Hazard Analysis (JHA)

a. A JHA or Safe Plan of Action (SPA) is a process developed to address the hazards of jobs and/or tasks. NASA SSC, on-site prime contractors and construction contractors shall be required to perform JHAs/SPAs to address risks of and controls for job/tasks.

b. The JHA/SPA 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.

c. JHAs/SPAs shall be prepared and signed by the affected work crew.

d. The JHA/SPA shall be updated if there are changes in the conditions of the job/task.

4.4 Routine Self-inspections and Audits

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

4.4.1 Facility Safety Inspections

a. NASA SSC and its prime contractors shall conduct inspections of their operations and facilities so that their entire worksite has been inspected at least once per quarter. The inspection process is defined in SCWI 8715-0005, *SSC Safety, Health, Housekeeping and Essential Item Inspection.*

b. NASA direct construction contractors shall be required to inspect their operations so that their entire worksite is covered at least once weekly. The inspection process is defined in SCWI-8715-0008, *Construction Safety and Health Program*, and SCWI 8715-0005, *SSC Safety, Health, Housekeeping and Essential Item Inspection.*

c. 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.

d. All documentation of inspections shall be maintained in accordance with SCWI 8715-0005, *SSC Safety, Health, Housekeeping and Essential Item Inspection*.

e. Deficiencies resulting from Facility Safety Inspections shall be entered into a database that tracks the deficiencies until corrective actions have been completed.

f. The inspected area maintains records but provides them to NASA SMA on a quarterly basis for verification of completion.

4.4.2 Critical Item Inspections

a. NASA SSC, its prime contractors and NASA direct 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 Computerized Maintenance Management System. 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 prime contractors, and NASA direct 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 the 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 Safety and Health Audits

a. NASA SSC SMA shall maintain an audit program that meets the requirements in SCWI-8710-0004, *SSC Internal and External Audit Process*. These audits will include safety and health topics.

b. Records of audits shall be maintained by NASA SSC SMA and made available for review.

c. Audit findings shall be documented and tracked to completion through a corrective action tracking system.

d. Safety and health topics are a part of the overall internal audit program and are incorporated in every internal audit.

e. Headquarters audits shall be performed in accordance with applicable NASA policy or directives.

4.4.5 Inspection Quality

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

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

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

b. The department receiving the request shall prioritize the request based on risk to safety and health and complete the work in the order of priority.

c. Documentation of Trouble Desk requests shall be tracked to completion and maintained as records by the Trouble Desk contractor.

d. Corrective actions of safety work requests shall be completed within the established timeframe per contract, with the appropriate priority given to emergency requests where safety, life, or property is threatened and to requests needed to restore a healthful environment.

e. 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 Calls

a. NASA SSC, its contractors, construction contractors, and tenants shall use Close Call Reporting System (CCRS) to report any events or conditions that have the potential to result in an injury, illness, or property damage. The NASA SSC main portal page contains a link to

the CCRS to report close calls. Close calls may also be reported through the paper form in the SCWI-8715-0016, *SSC Close Call Reporting System (CCRS),* or the CCRS hotline, (228) 688-7233. The form is located with the CCRS posters.

b. NASA SSC SMA shall verify NASA CCRS posters are distributed and displayed.

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.

b. Access to the NSRS is available to employees from the NASA HQ page http://www.hq.nasa.gov/office/codeq/nsrs/index.htm. Forms for this reporting process are also available through the SMA Directorate in the event an employee prefers to mail a concern or request.

4.6 Mishap (Accident/Incident) Reporting and Investigations

a. NASA SSC employees, 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 report in the NASA Mishap Information System (NMIS). Mishaps may also be documented on form SSC Form 1627, *NASA SSC Mishap Report,* if NMIS is unavailable.

d. NASA SSC shall conduct investigations per SPLN-8621-0003, *SSC Mishap Preparedness and Contingency Plan*.

e. NASA SSC prime contractors and NASA direct construction contractors shall establish programs that describe their investigation procedures, assign responsibilities, outline required training, specify the forms to be used, and define all recordkeeping requirements.

4.7 Trend/Pattern Analysis

a. Trend data obtained from reports of injuries/illnesses, close calls, and facility inspections shall be regularly monitored and analyzed to detect developing or existing trends that could lead to mishaps.

b. SMA shall document the trend analysis results in the VPP Self-Evaluation and present results to the Center Director and SMR Committee.

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.

CHAPTER 5. HAZARD PREVENTION AND CONTROL

Engineering controls, administrative controls, work practice controls, and PPE 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, its contractors, and construction contractors shall pursue engineering control solutions, which directly eliminate a hazard or reduce its risk as a preferred method over PPE and/or administrative controls.

b. 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 than lower risks.

c. Local exhaust ventilation system design for controlling employee exposures or airborne contamination shall conform to SCWI-1840-0002*, SSC Local Exhaust Ventilation for Health Hazard Control*. These engineering controls will be inspected and maintained on a regular basis per SCWI-1840-0002*, SSC Local Exhaust Ventilation for Health Hazard Control.*

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

a. If engineering controls are not feasible, 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 SMA and/or IH shall determine the acceptability of administrative controls whenever their acceptability is in question. Procedures for risk ranking and acceptance are located in SCWI-8710-0001, *SSC Systems Safety and Health*.

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5.3 Work Practice Controls

NASA SSC has developed a collection of documented work practice controls, which are housed, controlled, and maintained according to SPR 1400.1, *Document Preparation, Numbering, and Management*.

a. NASA SSC, its contractors, and construction contractors shall comply with government regulations.

b. Work practice controls 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 by NASA SSC to provide guidance and instruction for safety and health programs related to best practices, awareness, or promotion.

d. NASA SSC, its prime contractors, and NASA direct 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 that comply with the requirements of all applicable regulations and any specific requirements unique to NASA SSC.

e. Work instructions shall be developed that contain appropriate safety warnings and comply with all standards and regulations. Examples of work instructions include but are not limited to Hazard Communication, Hearing Conservation, Lockout / Tagout (LO/TO) , Confined Space Entry, Process Safety Management, Emergency Preparedness, Fire/Protection Prevention, and Safety Training.

f. All safety work instructions and related documents developed for NASA SSC shall be available at any time for audit and review by NASA SSC and outside regulatory agencies.

5.4 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. Specific requirements of NASA SSC PPE program are covered in SCWI-8715-0002, *Personal Protective Equipment*.

a. NASA SSC Civil Service employees' 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 shall be included in their organization's PPE program and receive appropriate PPE user safety training.

b. NASA SSC, its contractors and construction contractors shall maintain a PPE program that meets or exceeds the requirements of 29 CFR 1910.132 – 138.

5.5 Hazardous and Safety Critical Procedures and Use of the Buddy System

Hazardous procedures include any operation, process, or procedure involving materials, equipment, or tasks that have a potential for death, injury or damage to facilities, systems, and environment.

Safety critical procedures include any operation, process, or procedure involving materials, equipment, or tasks that have a high potential for death, injury or damage to facilities, systems, and environment.

Safety critical procedures are a subset of hazardous procedures where the risk of injury or damage is more severe. Procedures may also be safety critical if experience has shown that the task has a complexity beyond that of routine or requires more than brief training or experience to accomplish; if it contains steps that must be satisfactorily completed in a specific sequence; if preparation for the task has been specified as the corrective action by an investigation; or if the process may be one that must be controlled because the hardware involved, such as flight hardware or test article hardware for which the customer has imposed requirements.

Examples of hazardous operations and procedures are:

a. Remote and isolated work operations
b. Welding/cutting/spark producing operations conducted within fifty (50) feet of propellant, flammable liquid/gas/vapor
c. Welding/cutting/spark producing operations conducted within one hundred (100) feet of oxygen systems
d. Marine and rail operations
e. Energized low voltage system operations (i.e., 50 volts or more in which the work has to be performed “hot” and involves working within enclosures or on circuits) - Properly de-energized equipment, properly locked and tagged out, does not necessarily require use of the buddy system unless there is some other requirement for its use.
f. Explosive/ordinance/pyrotechnics handling/testing operations
g. Cryogenic transfer and venting operations
h. Personnel lift operations
i. Radiological operations
j. Diving operations
k. Excavation Activities - Refer to the Construction Safety and Health Program SCWI-8715-0008 for use of the buddy system when excavations are being made.
l. Laboratory operations with a potential for death, injury or damage to facilities, systems, and environment
m. High-pressure gas operations in excess of one hundred fifty (150) pounds per square inch gauge (psig)
n. Low-pressure high-volume gas operations

o. Operations with voltages above six hundred (600) volts
p. Storage and handling of liquid or solid propellants
q. Storage and handling of explosives
r. Use of "heavy lift" material handling equipment and engineered lifts
s. Operations in extreme temperature environments
t. Operations in oxygen-deficient or -enriched environments
u. Operation in permit-required confined space entries
v. LO/TO required operations

The buddy system refers to personnel working in pairs, with one person in the pair stationed nearby, not directly exposed to the hazard, to serve as an observer to render assistance if needed. The buddy system shall be considered whenever hazardous operations are being conducted. The buddy system is used to minimize personnel injury and/or limit property damage given an accident or emergency situation. "Buddies" are expected to monitor each other, to stay close enough to be able to help in an emergency, to behave safely, and to follow prescribed safety procedures as applicable. Use of a radio as a way to maintain proximity should be evaluated by the manager or supervisor. Use of the buddy system will be evaluated during the JHA or AHA as a way to mitigate risks due to hazards.

Safety critical procedures require additional scrutiny. The responsible engineer or supervisor shall determine the need for a procedure to address safety critical operations. Those procedures shall include steps to ensure the safety of personnel and specify actions to bring an emergency situation under control by returning the system(s) to the nearest possible safe condition. The initial safety critical procedure and deviations from it shall require the approval of the cognizant safety representative in addition to the cognizant engineer. The title page of safety critical procedures shall be prominently marked "Safety Critical." Procedures shall use one of the following cautionary notes to precede specific steps or sections in which a malfunction or error produces a reaction that causes system degradation, personnel injury, or death.

a. **WARNING** - Maintenance or operating procedures, techniques, or restrictions that may result in severe personnel injury, loss of life, or major equipment damage if not followed exactly.
b. **CAUTION** - Maintenance or operating procedures, techniques, or restrictions that may result in some damage to equipment or system, or minor injuries to personnel if not followed exactly.
c. **NOTE** - Maintenance or operating procedures, techniques, or restrictions that require emphasis for safe operation.

5.6 Maximum Work Policy

NASA civil servants and contractors shall abide by the maximum work time requirements as listed in NPR 1800.1*, NASA Occupational Health Program,* section 2.15, including the appropriate approvals. The limits in Table 1 shall not be exceeded by any employee without

approval. In addition, all exceedances by a critical employee require consideration of the human factors risk with the approval.

Table 1. Maximum Work Time

Hours per day	Hours per week	Days per week without a full day off	Minimum hours off between shifts	Hours per 4-week period	Hours during rolling a 12-month period
12	60	7	8	240	2500

A direct supervisor's approval is required for any employee to exceed 12 hours a day. The direct supervisor may approve up to 16 hours per day. No employee shall work more than 16 hours a day unless there is a program-declared emergency or center-declared emergency. A second-level supervisor's approval is required for an employee to work beyond 60 hours per week or 240 hours per four (4)-week period.

In addition, organizations shall:

a. Ensure supervisors are knowledgeable of the policy, including its enforcement.

b. Prepare and maintain a list that identifies and documents critical positions using the criteria in NPR 1800.1, *NASA Occupational Health Program Procedures,* section 2.15.1.2a.

c. Obtain the proper approvals before extended work hours begin. These approvals may include the immediate supervisor; a supervisor capable of evaluating the human factors risk level for the critical role; or higher level of authority, up to the Center Director, depending on the length of the day requested and whether or not the work is critical.

d. Gain Center Director approval and concurrence by the SMA Director for deviations greater than 16 hours a day. NASA contractors shall gain approvals from appropriate contractor counterparts as well as the Center Director.

Note: There is the possibility during high rates of overtime that civil service personnel may exceed the Office of Personnel Management (OPM) biweekly pay cut limit (limit on pay for a 2-week pay period). When this is a possibility, the director requesting the overtime variance should also provide a request memorandum to the Stennis Office of Human Capital (OHC) of the plan for the high overtime periods that lists the affected personnel. This requires approval by the Center Director and the Director of SMA. OHC can then complete the coordination and authorize the employees to be paid for the planned overtime worked.

5.7 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 as outlined in SPD 8715.9, *SSC Policy Directive Pedestrian Safety*.

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, *Federal Motor Vehicle Safety Standards*.

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, *SSC 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 SCWI-3752-0001, *Disciplinary and Adverse Actions*. 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 prime contractors and NASA direct construction contractors shall result in penalties imposed as specified in the NASA contract with each respective contractor, and per their organization's policies.

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 the facilities contractor, Office of Human Capital, 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 facilities 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 their escorts shall follow SPD 8715.8, *SSC Visitor Safety Policy*.

5.8 Process Safety Management (PSM)

The hazardous toxic commodities and associated high pressures used in daily processes to complete the assigned mission at SSC dictated the establishment of an effective PSM program for NASA SSC, its contractors, and subcontractors. Industries using hazardous materials have reported unexpected releases of toxic, reactive, or flammable liquids and gases in processes involving highly hazardous chemicals for many years. There always is a potential for an accidental release if hazardous chemicals are not properly controlled, creating the possibility of disaster.

a. NASA SSC shall evaluate all systems containing any chemicals at or above the threshold quantity defined in 29 CFR 1910.119, *Process Safety Management of Highly Hazardous Chemicals,* to determine the applicability to 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, *Process Safety Management of Highly Hazardous Chemicals,* and for PSM as specified in SCWI-8715-0010, *Process Safety Management*.

c. NASA SSC SMA shall assign a PSM Coordinator within the department responsible for monitoring NASA SSC and its contractors' compliance with the Federal, State, Local, and NASA requirements of the PSM program on SSC.

d. The SMA appointed PSM Coordinator shall:

(1) Complete training in all elements of PSM.
(2) Maintain SPR 1740.1, *Pressure Vessel and Pressurized Systems Procedural Requirements,* and SCWI-8715-0010, *Process Safety Management Program*.
(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 to ensure that any new or previously not covered processes that would benefit from the application of PSM are included in the list of PSM covered processes.
(5) Ensure that new processes have been reviewed for applicability prior to first time activation. 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.
(6) Maintain a training program for those NASA Civil Service employees who may work in a PSM covered process.
(7) Maintain in-house PSM overview training.

e. 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 and the appropriate oversight if the scope of their work is within a PSM covered process.

f. SCWI 8715-0010, *Process Safety Management Program*, shall provide further guidance for compliance with OSHA 29 CFR 1910.119, *Process Safety Management of Highly Hazardous Chemicals,* and clearly define the roles and responsibilities for PSM.

5.9 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 for 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. The SSC Fire Department shall provide training for the safe use of AEDs.

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.

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 Blood Borne Pathogens Control Program*.

5.10 Preventive/Predictive Maintenance

NASA SSC and its prime contractors shall establish 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, lifesaving equipment, pressure vessels, pressure relief devices, motors, pumps, compressors, hoists, cranes, slings, fire protection systems, firefighting, 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 PM 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 PM inspection process shall be documented in the appropriate nonconformance system per SPR 8730.1, *Control of Nonconforming Product*, and resolved expeditiously.

e. The SSC prime contractors shall be responsible for PM programs for the institutional and Test Complex systems as required per their respective contracts.

5.11 Tracking of Hazard Correction

This requirement applies to NASA SSC, its prime contractors, and NASA direct construction contractors.

a. NASA SSC, its prime contractors, and NASA direct construction contractors shall track all corrective actions.

b. All identified hazards and unsafe conditions found through self-inspections, mishaps, close calls, preventive maintenance, safety work requests, Safety Committee recommendations, emergency drill critiques, Process Hazard Analysis recommendations, safety audits, or other means shall be documented.

c. Corrective actions shall be expeditiously pursued to closure. The organization responsible for the area is assigned to track the corrective action to completion. Completed corrective action records are retained and managed as records.

d. Each corrective action tracking system shall include methods for recording hazards, assigning responsibility, timeframes for correction, interim protection, and follow-up to ensure abatement.

e. Each organization shall use a NASA designated database for corrective actions involving safety work requests and self-inspections.

f. NMIS shall be used to track NASA mishap and close call investigations.

g. Maximo and similar programs are acceptable for the notification and tracking of minor corrective maintenance.

h. Other software programs shall be used to track all remaining actions that arise from safety and health processes including but not limited to CCRS, Audit Tracking and Information Software (ATIS), and Safety Health and Environment Tracking (SHEtrak) system.

5.12 Emergency Preparedness

a. Emergency preparedness procedures are defined in SPLN-1040-0006, *Emergency Management Plan*.

b. NASA SSC, its 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. Documentation and critique of evacuation drills and recommendations for improvement shall be completed and corrective actions tracked to completion.

5.13 Variances from Safety Requirements

When it is necessary to deviate from a specific requirement, a written request using SSC Form 517, *Variance Request*, will be submitted per SSTD-8070-0007-CONFIG, *Variance and Alternate Standard Requests*. The SMA Technical Authority process is available for issues that fall under the scope of SPLN-1200-0003*, SSC Safety and Mission Assurance Technical Authority Implementation Plan*. An additional written request to NASA Headquarters by SMA is required for variances of NASA Headquarters regulations. There are no variances available at the center level for OSHA and other agency regulations.

Safety critical operations are as defined in 5.5., Hazardous and Safety Critical Procedures and Use of the Buddy System.

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CHAPTER 6. TRAINING

6.1 New and Transferred Employees

a. NASA SSC, its prime contractors, and NASA direct construction contractors shall have an effective safety and health training program for orientation and job safety training of new and transferred employees.

b. All new employees are required to complete the safety and health orientation training programs within the first 30 days of employment.

c. 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 complete
(4) Recordkeeping systems for maintaining and retrieving training documentation
(5) Periodic review and update of training information

d. The new and transferred employee training orientation shall include:

(1) A review of on-the-job hazards, and 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

e. The NASA Office of Human Capital shall manage the safety and health orientation process for NASA SSC Civil Service employees.

f. NASA SSC, its prime contractors, and NASA direct 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.

g. NASA direct construction contractors shall maintain their safety orientation training documentation and make the documentation available for review by NASA SMA.

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, its prime contractors, and NASA direct 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 operations or safety certifications over and above these basic requirements.

i. NASA SSC, its prime contractors, and NASA direct construction contractors shall establish a training plan. The plan shall be available for review.

6.3 Training Records Management

The electronic system to maintain training records shall include the following:

a. Documentation of training including attendees, date, time, instructor, and location

b. An outline for each training course

c. Handouts and other training materials provided to employees

d. Tests or other means to document employees' understanding of training requirements

APPENDIX A. ACRONYMS

ACGIH	American Conference of Governmental Industrial Hygienists
AED	Automated External Defibrillators
AIHA	American Industrial Hygiene Association
AHA	Activity Hazard Analysis
AIAA	American Institute of Aeronautics and Astronautics
AMC	Army Material Command
ANSI	American National Standards Institute
ASTM	American Society of Testing and Materials
ATIS	Audit Tracking and Information System
BEI	Biological Exposure Indices
CCRS	Close Call Reporting System
CFR	Code of Federal Regulations
CM	Configuration Management
CO	Contracting Officer
COR	Contracting Officer Representative
CPR	Cardiopulmonary Resuscitation
CSP	Cooperative State Programs
DOT	Department of Transportation
EO	Executive Order
EOC	Emergency Operations Center
E&TD	Engineering and Test Directorate
FAA	Federal Aviation Administration
FAR	Federal Acquisition Regulations
FRI	Facility Risk Indicators
HP	Health Physics
HZM	Hazardous Material
IH	Industrial Hygiene
JHA	Job Hazard Analysis
LO/TO	Lockout/Tagout
MOVERS	Motivating OSHA VPP Readiness Successfully
NASA	National Aeronautics and Space Administration
NF	NASA Form
NFPA	National Fire Protection Agency
NMIS	NASA Mishap Information System
NPD	NASA Policy Directive
NPR	NASA Procedural Requirement
NSRS	NASA Safety Reporting System
NSTM	Naval Ships' Technical Manual
OHC	Office of Human Capital
OM	Occupational Medicine
OPM	Office of Personnel Management

ORA	Operational Readiness Assessment
OSHA	Occupational Safety and Health Administration
PM	Preventative/Predictive Maintenance
PPE	Personal Protective Equipment
psig	pounds per square inch
PSM	Process Safety Management
PV/S	Pressure Vessels and Pressurization Systems
SCWI	Stennis Space Center Common Work Instruction
SHETrak	Safety Health and Environment Tracking system
SMA	Safety and Mission Assurance Directorate
SME	Subject Matter Expert
SMR	Safety Management Review
SPA	Safe Plan of Action
SPLN	Stennis Space Center Plan
SPD	Stennis Space Center Directive
SPR	Stennis Space Center Procedural Requirements
SSC	John C. Stennis Space Center
SSP	Stennis Safety Procedure
STARS	Striving to Achieve Real Safety
TDP	Test Designated Positions
TLV	Threshold Limit Values
VPP	Voluntary Protection Program

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APPENDIX B. SAFETY AND HEALTH REQUIREMENTS and WORK INSTRUCTIONS

External Requirements

14 CFR Parts 1 - 198, *Federal Aviation Regulations (FARs)*
29 CFR 1910, *Occupational Safety and Health Standards*
29 CFR 1926, *Safety and Health Regulations for Construction*
29 CFR 1960, *Basic Program Elements for Federal Employee Occupational Safety and Health Administration (OSHA)*
ACGIH: *TLVs For Chemical Substances and BEIs*
AMCR 385-100, *Army Material Command, Safety Manual*, latest edition
ANSI B-11, *Machine Guarding*
ANSI Z136.1, *Safe Use of Lasers*
ANSI/AIAA G-095-2004, *Guide to Safety of Hydrogen and Hydrogen Systems*
ASTM Manual 36, *Manual for Safe Use of Oxygen and Oxygen Systems: Handbook for Design, Operation, and Maintenance*
Compressed Gas Association Pamphlet P-1-1965
Compressed Gas Association Pamphlets C-6-1968 and C-8-1962
Compressed Gas Association Pamphlets S-1.1-1963 and 1965 addenda and S-1.2-1963
DOT Code of Federal Regulations, *Title 49*
FAA Form 337, *Major Repair and Alteration (Airframe, Powerplant, Propeller, or Appliance)*
Mil-STD-101, *Color Code for Pipelines and Compressed Gas Cylinders*
MIL-STD-882D, *Standard Practice for System Safety*
NFPA (V4) 780, *Standard for the Installation of Lightning Protection Systems*
NFPA 102, *Standard for Grandstands, Folding and Telescopic Seating, Tents, and Membrane Structures*
NSTM Chapter 550, *Naval Ships' Technical Manual*
Title 63, *Mississippi Motor Vehicle and Traffic Regulations*

NASA Agency Policies, Requirements and Standards

NASA-STD-8719.11, *Safety Standard for Fire Protection*
NASA-STD-8719.12, *NASA Standard for Explosives, Propellants, and Pyrotechnics*
NASA-STD-8719.17, *NASA Requirements for Ground Based Pressure Vessels and Pressurized Systems (PV/S)*
NASA-STD-8719.7, *NASA Facility System Safety Guidebook*
NASA-STD-8719.9, *NASA Lifting Standard*
NPD 7900.4, *Aircraft Operations Management*
NPD 8710.5, *Safety Policy for Pressure Vessels and Pressurized Systems*
NPR 3600.1, *Attendance and Leave*
NPR 7900.3, *Aircraft Operations Management Manual*
NPR 8621.1, *Mishap, Reporting, Investigating, and Recordkeeping*

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NPR 8715.1, *Occupational Safety and Health Programs*
NPR 8715.3, *General Safety Program Requirements*

NASA SSC Policies and Requirements

RPTSTD-8070-0001, *Surface Cleanliness Standard of Fluid Systems for Rocket Engine Test Facilities of the NASA Rocket Propulsion Test Program*
SPD 1800.1, *SSC Smoke Free Workplace*
SPLN-1200-0003, *SSC Safety and Mission Assurance Technical Authority Implementation Plan*
SPLN-8621-0003, *SSC Mishap Preparedness and Contingency Plan*
SPLN-8715-0005, *SSC Construction Safety and Health Surveillance Plan*
SPR 1600.1, *SSC Security Requirements Handbook*
SPR 1740.1, *SSC Pressure Vessels and Pressurized System Procedural Requirements*
SPR 6330.1, *SSC Explosive Safety Program*
SPR 8500.2, *SSC Environmental Operations and Implementation Program Procedural Requirements*
SPR 8715.1, *SSC Safety and Health Program Requirements*
SPR 8715.7, *SSC Range Safety Program*
SSTD-8070-0007-CONFIG, *SSC Variance and Alternate Standard Requests*
SSTD-8070-0094-COMPNTS, *SSC Standard for Bourdon Tube Pressure and Vacuum Gages for Use in Facility Piping or Tubing Systems*
SSTD-8070-0097-TEST, *SSC Relief Devices – Inspection and Recertification*

SSC Work Instructions

SCWI-1800-0001, *SSC Ergonomics Program*
SCWI-1800-0003, *SSC Bloodborne Pathogens Control Program*
SCWI-1800-0005, *SSC Hazard Communication*
SCWI-3410-0003, *Training/Certification Plan and Schedule Report*
SCWI-8500-0002, *SSC Hearing Conservation*
SCWI-8500-0004-ENV, *SSC Hazardous Materials, Hazardous Waste, and Solid Waste Plan*
SCWI-8500-0019-ENV, *SSC Asbestos Hazard Control Plan*
SCWI-8700-0002, *SSC Health Physics Program (Ionizing and Nonionizing Radiation)*
SCWI-8710-0001, *SSC System Safety and Health*
SCWI-8715-0001, *SSC Lightning Warning System*
SCWI-8715-0002, *SSC Personal Protective Equipment*
SCWI-8715-0003, *SSC Fall Protection Program*
SCWI-8715-0004, *SSC Confined Space Entry Program*
SCWI-8715-0006, *SSC Electrical Safety Program*
SCWI-8715-0008, *SSC Construction Safety and Health Program*
SCWI-8715-0010, *SSC Process Safety Management (PSM) Program*
SCWI-8715-0012, *SSC Work in Hazardous Classification Areas*
SCWI-8715-0013, *SSC Control of Hazardous Energy Lockout / Tagout and Non-Service / Maintenance Hazardous Energy Isolation*

SCWI-8715-0015, *SSC Laboratory Chemical Safety and Health Program*
SCWI-8838-0001, *SSC Automated External Defibrillator (AED) Program, Protocol*
SCWI-8838-0002, *SSC Hot Work Program Procedure*
SWI-8834-0001, *SSC Lifting Devices and Equipment Management Instructions*

NASA Forms
NASA Form (NF) 1707, *Special Approvals and Affirmations of Requisitions*
NASA Form (NF) 1791, *Explosive Facility License*

SSC Forms
SSC Form 862, *Hazardous Materials Approval Form*
SSC Form 68, *Flame "Hot Work" Permit*
SSC Form 517, *Variance Request*
SSC Form 559, *Report of Industrial Injury or Illness*
SSC Form 602, *Request for Physical/Surveillance Examination for Certification*
SSC Form 727, *Employee Technical Training Certification Card*
SSC Form 862, *SSC Hazardous Materials Approval Form*
SSC Form 1627, *NASA SSC Mishap Report*

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