



**GLENN  
PROCEDURAL  
REQUIREMENTS**

**Directive: GLPR 8715.1A**  
Effective Date: **09/12/2022**  
Expiration Date: **09/12/2027**

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**COMPLIANCE IS MANDATORY**

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**Responsible Office: Q/Safety and Mission Assurance Directorate**  
**Glenn Research Center Safety and Health**  
**Management System**

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## **PREFACE**

### **P.1 PURPOSE**

- a. It is the policy of National Aeronautics and Space Administration (NASA) John H. Glenn Research Center (GRC) to provide a safe and healthful work environment that complies with Federal and local regulations, and applicable NASA and NASA GRC policies and guidelines.
- b. This directive's purpose is to document NASA GRC-specific elements of the applicable hazard control programs and their associated compliance policies, requirements, and work instructions required by the Glenn Procedural Requirements (GLPR) Safety and Health Management System (SHMS), applicable Occupational Safety and Health Administration (OSHA) standards, and NASA-wide safety and health requirements.
- c. This directive provides the overall direction for GRC to support NASA's commitment to protect the safety and health of the public, our team members, and those assets that the Nation entrusts to NASA. It should be emphasized, however, that each employee has a responsibility for safety, both his/her own and that of others who may be impacted by the employee's actions.

### **P.2 APPLICABILITY**

- a. This directive is applicable to all organizations, partners, contractor personnel, non-NASA personnel, and visitors performing NASA work on GRC property.
- b. The scope of the Glenn SHMS applies to all GRC operations and their associated activities, products, and services, equipment and facilities.
- c. This directive is applicable to other documents developed or revised after the effective date of this Glenn Procedural Requirement (GLPR).
- d. If disagreement exists over which of the aforementioned documents takes precedence, the Center Director and Safety and Mission Assurance (S&MA) will make the final determination.
- e. In this directive, all mandatory actions (i.e., requirements) are denoted by statements containing the term "shall." The terms "may" denotes a discretionary privilege or permission, "can" denotes statements of possibility or capability, "should" denotes a good practice and is recommended, but not required, "will" denotes expected outcome, and "are/is" denotes descriptive material.
- f. In this directive, all document citations are assumed to be the latest version, unless otherwise noted.
- g. In this directive, the term Center Employees or more globally, Employee(s), includes all civil servants and contract employees assigned to or working at Lewis Field, Armstrong Test Facility and other GRC locations.

### **P.3 AUTHORITY**

- a. Basic Program Elements for Federal Employee Occupational Safety and Health Programs and Related Matters, Title 29 Code of Federal Regulations (CFR), Part 1960
- b. Occupational Safety and Health Programs for Federal Employees, Executive Order (E.O.) 12196
- c. NASA Procedural Requirements (NPR) 8000.4, Agency Risk Management Procedural Requirements
- d. NPR 8715.1, NASA Safety and Health Programs
- e. NPR 8715.3, NASA General Safety Program Requirements

### **P.4 APPLICABLE DOCUMENTS AND FORMS**

- a. Recording and Reporting Occupational Injuries and Illness, 29 CFR 1904
- b. Basic Program Elements for Federal Employee Occupational Safety and Health Programs and Related Matters, 29 CFR 1960
- c. NPR 1800.1, NASA Occupational Health Program Procedures
- d. NPR 3410.2, Employee and Organizational Development
- e. NPR 7123.1, NASA Systems Engineering Processes and Requirements
- f. NPR 8621.1, NASA Procedural Requirements for Mishap and Close Call Reporting, Investigating, and Recordkeeping
- g. NPR 8705.6, Safety and Mission Assurance (SMA) Audits, Reviews and Assessments
- h. NPR 8715.1, NASA Occupational Safety and Health Programs
- i. NPR 8715.2, NASA Emergency Management Program Procedural Requirements
- j. NPR 8715.3, NASA General Safety Program Requirements
- k. NPR 8820.2, Facility Project Requirements (FPR)
- l. NASA-HDBK-8709.24, NASA Safety Culture Handbook
- m. NASA-STD-8709.20, Management of Safety and Mission Assurance Technical Authority Requirements
- n. Glenn Policy Directive (GLPD) 1000.1, GRC Governance and Strategic Management Structure
- o. Glenn Procedural Requirements (GLPR) 1280.1, Glenn Research Center Quality Manual
- p. GLPR 1410.1, Glenn Directives Management
- q. GLPR 1440.1, Records Management
- r. GLPR 3410.1, On-The-Job Training (OJT) Documentation

- s. GLPR 5100.1, Procurement
- t. GLPR 7120.5.10, GRC Space Flight Project Management Requirements and Best Practices
- u. GLPR 7120.8, GRC Research and Technology Project Management Procedure
- v. GLPR 7123.2, Systems Engineering for Flight and Ground Systems
- w. GLPR 8000.4, Risk Management
- x. Glenn Charter (GLC)-SAC-1000.1, GRC Strategic Advisory Council (SAC)
- y. GLC-MS-C-1000.1, GRC Mission Support Council (MSC)
- z. GLC-CMC-MS-C-SMB-8700.1, GRC Safety and Mission Assurance Management Board (SMB)
- aa. Glenn Procedure (GLP)-1120.1, NASA John H. Glenn Research Center Technical Authority Implementation Plan
- bb. GLP-Q-1280.2, Corrective and Preventive Action
- cc. GLP-QS-1800.1, Occupational Health Programs Manual
- dd. GLP-QS-8715.1, Glenn Research Center Safety and Health Management System
- ee. Glenn Work Instruction (GLWI)-QS-1410.1, Internal Document Management of the GRC Safety and Occupational Health Programs Manual
- ff. NASA Form 1613, Occupational Safety and Health Protection for NASA Employees
- gg. Form GRC 83, Safety and Health Requirement Relief Request
- hh. Form GRC 1707, Special Approvals and Affirmations of Requisitions
- ii. Form GRC 8095, Statement of Work Requirements Review and Concurrence
- jj. NASA Desk Guide for Table of Disciplinary Offenses and Penalties

## **P.5 MEASUREMENT/VERIFICATION**

The Safety and Mission Assurance Directorate shall monitor compliance using audits, inspections and assessments as defined in this document.

## **P.6 CANCELLATION**

This GLPR 8715.1A cancels GLPR 8715.1, Glenn Research Center Safety and Health Management System, revision Basic, dated February 27, 2017.

**LAURENCE SIVIC** *Digitally signed by LAURENCE SIVIC*  
*Date: 2022.09.12 12:24:20 -04'00'*

Laurence A. Sivic  
 Associate Director

# CHAPTER 1: Management Leadership and Employee Involvement

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## 1.1 Management Commitment & Leadership

1.1.1 It is the policy of NASA GRC to manage and conduct its operations in a manner that minimizes or eliminates risk to its workforce, property, environment, and community.

1.1.2 The Center is committed to an effective safety and health program that ultimately contributes to mission success and adding value by reducing risks, preventing mishaps, and protecting employees. In the event of a conflict or difference the employees shall follow the more restrictive or safer requirement.

1.1.3 The NPR 8715.1 directs the Center to establish a framework in accordance with the seven core safety and health management system elements described in the “Recommended Practices for Safety and Health Programs,” OSHA 3885 publication.

1.1.4 Management and supervisors at all levels work to provide a workplace free of recognized hazards.

1.1.5 This GLPR is applicable to NASA support service contractors (SSCs) to the extent specified by their respective contractual documents. The SSC tenants should implement a safety and health program that appropriately covers their respective operations as specified in their host tenant agreement or Space Act Agreement, whichever applies.

1.1.6 Identifying and mitigating exposures to occupational hazards before work begins is critical. The hierarchy of controls has five levels of actions to reduce or remove hazards. The preferred order of action based on general effectiveness is: 1) Elimination; 2) Substitution; 3) Engineering controls; 4) Administrative controls; and 5) Personal protective equipment (PPE). In the hierarchy of worker protection controls against occupational hazards, the preferred solution is to eliminate the hazard. However, if that is not possible, then an engineering, design, or other solution is sought that can be built into the work environment. Additionally, workplaces often combine multiple methods of control to ensure thorough protection. Management and supervisors should not rely on PPE alone to control hazards when other effective control options are available. PPE can be effective, but only when workers use it correctly and consistently. First try to eliminate or control a hazard before resorting to PPE.

1.1.7 Ensures that GRC employees comply with applicable federal, state and local regulations, and contractual laws and regulations affecting the safety and health of Center employees and visitors.

1.1.8 Ensures that GRC operations and activities conform to Agency and Center safety and health requirements.

## 1.2 Responsibilities and Authorities

### 1.2.1 The Center Director shall:

- a. Maintain a safe and healthy work environment for the workforce.
- b. Establish SHMS in accordance with NPR 1800.1, NPR 8715.3 and NPR 8715.1.
- c. Provide resources (personnel and funding) to implement this directive.
- d. Assign responsibility, establishes accountability, and delegates authority to Directorates and offices for the oversight of federal, NASA SSC and its contractors to implement, maintain, and improve the SHMS, as applicable
- e. Ensure safety performance standards and indicators are included in each supervisor's performance plan.
- f. Appoint subject matter experts (SMEs) to oversee key safety and health programs such as, fire protection, pressure vessels/systems, explosives, lifting devices and equipment, radiation, etc.
- g. Notify the Chief Health and Medical Officer and Chief of the Office of Safety and Mission Assurance (SMA) within one hour when the Occupational Safety and Health Administration (OSHA), Nuclear Regulatory Commission, or other occupational safety or health regulatory inspectors arrive at GRC for the purpose of conducting an inspection or visit. Provides a summary of any findings and corrective action to the Chief Health and Medical Officer and Chief of SMA within ten working days following written notification of findings of an inspection or visit by OSHA or an evaluation by the Nuclear Regulatory Commission, or other regulatory agency.
- h. Establish a Risk Management System consistent with NPR 8000.4.
- i. Escalate Safety Risks to Office of Safety and Mission Assurance (OSMA), as required.
- j. Track and reports hazards and incidents consistent with NPR 8621.1.
- k. Take appropriate action to protect employees in imminent danger or future hazard to people, property, or mission operations due to unsafe acts or conditions that might be identified by either inspection or analysis situations by directing work activity suspension, follow-up investigation and expeditious corrective action(s) activity for the deficiency or unsafe condition.
- l. Ensure safety and health hazards are identified resulting from non-routine or emergency tasks during development and implementation of the Emergency Management Plan (EMP) and the Continuity of Operations Plan (COOP), which address any emergencies and contingencies that may impact regular operations at GRC.
- m. Integrate the SHMS into the Center's strategic planning process and its quality management system as defined in GLPR 1280.1.

- n. Approve yearly Center Safety and Health Goals and objectives.
- o. Assure provision of resources for specialized expertise, adequate funding, oversight guidance, and direction for maintaining the Center's Safety and Health Program.

1.2.2 Associate Center Director shall:

- a. Support the Center Director in maintaining the Center's Health and Safety Management System and chairs the Mission Support Council (MSC) in accordance with GLPD 1000.1. The MSC provides institutional, infrastructure, and facilities project oversight and resolves major institutional issues and risks that are within the Center's control. Special MSC meetings are held to focus on safety and health topics.
- b. Ensure Center level Safety and Health goals and objectives, safety statistics and inspection reports lead to continuous program improvement.

1.2.3 Director Of SMA shall:

- a. Be designated by the Center Director as the Center's Safety and Health Officer and the safety program implementation authority.
- b. With the Safety and Mission Assurance Directorate (SMAD), serve as the Safety and Center's Health and Safety Management System Champion and ensure a safe and healthy environment for the Center's community and contribute to the success of its programs and projects by providing technical excellence in mission assurance, operational safety and occupational health.
- c. Implement, maintain, and improve the Center's SHMS.
- d. Provide safety and mission assurance insight and oversight for GRC activities and operations.
- e. Serve as technical authority for safety, occupational health, and mission assurance.
- f. Facilitate the Center's Health and Safety Management System responsibilities to drive continuous improvement.
- g. Initiate the enforcement of NASA Safety and Health rules and requirements.
- h. Review the OSMA Center Office of Safety and Mission Assurance Health Assessment (OCSHA).
- i. Track and conduct trending analysis of Center Safety and Health Goals and objectives, hazards, inspection reports, mishaps and close calls and report findings to Senior managers in accordance to GLPD 1000.1.

- j. Implement the Risk Management Program in accordance with NPR 8000.4.
- k. Provide GRC's input to NASA's annual report to OSHA including the Center's written annual SHMS evaluations
- l. Ensure NASA Form 1613 is conspicuously posted in the GRC Official Bulletin Boards informing employees of the provisions of E.O. 12196 and the Basic Program Elements for Federal Employee Occupational Safety and Health Programs.

*Note: Code QS will make the request to Code C for approval to post the messaging on the Center's Official Bulletin Boards.*

- m. Ensure OSHA Form 300A, also known as the "Summary of Work-related Injuries and Illnesses," shall be completed by February 1 using data from the previous calendar year is either posted conspicuously throughout workplace on the Center's Official Bulletin Boards or electronically.

*Note: If the bulletin board option is chosen, Code QS will make the request to Code C for approval to post the messaging on the Center's Official Bulletin Boards.*

- n. Ensure OSHA 3165, "Job Safety And Health - It's The Law," poster that informs employees that they have the right to file a complaint with their employer or OSHA regarding unsafe or unhealthful working conditions is posted conspicuously throughout workplace.

*Note: Code QS will make the request to Code C for approval to post the messaging on the Center's Official Bulletin Boards.*

- o. Continue to support adoption existing health and safety standards/codes promulgated by OSHA, national consensus standards, manufacturer's recommendations and good engineering practice. Where more stringent safety and occupational health standards are set forth, the more stringent standards shall apply. Examples of health and safety program elements where more stringent standards are being followed are, but not limited to:

(1) Ergonomic and Indoor Air Quality Programs

(2) Use of American Conference of Governmental Industrial Hygienists' (ACGIH) Threshold Limit Values (TLVs®) for chemical and physical exposure limits

(3) Industrial hygiene consulting to contractors at no cost

(4) At least weekly inspections of construction activities.

#### 1.2.4 Center Managers and Supervisors shall:

- a. Comply with and provide leadership (to the extent of their authority) with the applicable sections of NPR 8715.1 and NPR 8715.3.

- b. Actively promote the Center's Health and Safety Management System 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 personally adhering to all safety rules, regulations, and practices.
- f. Know the Center's safety and health requirements, attend and participate in safety and health training for supervisors and maintain safety awareness for operations within the Manager's and Supervisor's area of responsibility.
- g. Recognize employees for safe and healthy work practices
- h. Incorporate applicable occupational safety and health standards into proposals, conceptual designs, work processes, statements of work (SOWs), procurements, and safety permits to ensure that potential safety and health hazards are properly identified, evaluated for safe operation and effective emergency response. The hazards will need to be reassessed when changes occur.
- i. Involve employees in safety and health-related activities (e.g., self-inspection, accident investigations and development of safe practices).
- j. When required, ensure disciplinary measures are taken for violations of safety and health in accordance with Agency Guidance.
- k. Ensure all employees under their responsibility are current with applicable safety training and Building Evacuation plans.
- l. 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.
- m. Formally verify the monthly workplace safety inspection process is working and hazards are being corrected in areas of responsibility, either directly or using a designee.
- n. Ensure all employees who work in Process Safety Management (PSM) covered areas receive the appropriate PSM overview training.
- o. Enforce and reinforce NASA SSC Safety and Health Program rules and requirements.
- p. 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. This will include responsibility to ensure personnel have adequate knowledge, skills, abilities, and medical clearance to perform work safely and are qualified or certified, as appropriate, for their assigned tasks.

- q. Be knowledgeable of NPR 1800.1, NASA Occupational Health Program Procedures.
- r. 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 E.O. 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.
- s. Contact the Center SMA Directorate in the event of an unannounced OSHA inspection.
- t. Notify the Safety and Health Division (SHeD) when a mishap or close call occurs (or is suspected) via telephone or by making an entry into the Agency Mishap Information System (NMIS).

*Note 1: A Mishap is an unplanned event caused by GRC operations or GRC-funded development and research projects that result in at least one of the following:*

- (a) Injury to non-NASA personnel.*
- (b) Damage to public, private, or foreign property.*
- (c) Occupational injury or illness to NASA personnel.*
- (d) NASA mission failure prior to scheduled completion of the planned primary mission.*
- (e) Destruction of, or damage to, NASA property, except for a malfunction or failure of component parts or systems that fail before their fixed useful life has been met, provided the following are true: (1) preventative maintenance was adequate and (2) the sole action is to replace or repair the component.*

*Note 2: A Close Call is an event that has a potential to cause a mishap, results in no injury or minor injury requiring first aid only, and less than \$20,000 in equipment and property damage.*

#### 1.2.5 Center Employees shall:

- a. Comply with all applicable OSHA standards.
- b. Follow all lawful employer safety and health rules and regulations.
- c. Wear or use prescribed protective equipment while working.
- d. Report hazardous conditions to your supervisor.
- e. Report any job-related injury or illness to your employer and seek treatment promptly.

#### 1.2.6 Center Employee Rights Procedure

All NASA employees have the right to:

- a. Receive training as required by OSHA standards.
- b. Request information about OSHA standards, worker injuries and illnesses, job hazards and workers' rights.
- c. Request action from management to correct hazards or violations.
- d. File a complaint with OSHA if it is believed that there are either violations of OSHA standards or serious workplace hazards.
- e. Find out the results of an OSHA inspection.
- f. Get involved in meetings or hearings to discuss objections management has to OSHA's citations or to changes in abatement deadlines.
- g. File an appeal of the deadlines that OSHA sets for correction of a violation in the citation issued for the workplace.
- h. File a discrimination complaint (under Section 11(c) of the OSH Act) within 30 days if punished or discriminated against for exercising their safety and health rights or for refusing to work (not guaranteed by the OSH Act) when faced with an imminent danger of death or serious injury and there is insufficient time for OSHA to inspect.
- i. Contact the National Institute for Occupational Safety and Health (NIOSH) to request a health hazard evaluation (HHE) if concerned about workplace hazards; requests for HHEs shall follow NIOSH criteria for those requests.
- j. Provide comments and testimony to OSHA during formal proceedings such as rulemaking on new standards.
- k. Employees may decline to perform an assigned task because of a reasonable belief that, under the circumstances, the task poses an imminent risk of death or serious bodily harm, coupled with a reasonable belief that there is insufficient time to seek effective redress through normal hazard reporting and abatement procedures (29 CFR §1960.46, Agency Responsibility, Allegation of Reprisal). In this situation, both the affected employee and local management shall:
  - (1) Be entitled to the opinion of qualified occupational safety and health personnel on the extent of the hazard; and,
  - (2) Notify their supervisor and the Director Of SMA.

### 1.2.7 Stop Work Authority

1.2.7.1 In accordance with NPR 8715.1, anyone has authority to immediately stop unsafe work practices at GRC that can lead to an “imminent danger” situation. Center employees have the authority to stop and forbid any work or activity that may put an employee or member of the public in imminent danger until an appropriate review and determination can be made. An

imminent danger is a workplace hazard that puts you at immediate serious risk of death or serious physical harm. Exercising this authority requires immediate notification to the SHED Chief.

1.2.7.2 Worker “Safety Time Out” – The Center has adopted a policy of open communication with respect to safety concerns among its employees and its contractors’ employees. Any time a safety concern is raised by any employee working on a joint program, the employee has the right to call a “Safety Time Out” to voice his/her concern. Work activities can resume after the parties involved have reached agreement on corrective action or understanding of the situation.

## 1.2.8 Safety and Health Technical Authority

The technical authority governance framework for safety and mission assurance and for health and medical is defined in GLP 1120.1.

## 1.2.9 Appointed Safety Discipline Leads or Subject Matter Experts (SMEs)

1.2.9.1 The Center Director appoints individuals to serve as appointed Safety Discipline Leads or SMEs. These positions are inherently governmental functions and may only be performed by civil servants. They may be supported by contractors. The Center Director may designate additional Institutional Safety Discipline Leads not defined in this document according to their needs.

1.2.9.2 Designated Institutional Safety Discipline Leads may only authorize activities within their discipline and domain. The Institutional Safety Discipline Leads cannot authorize activities that increase risk to the public, the workforce, or property beyond what is allowed by applicable standards.

1.2.9.3 Responsibilities of the Safety Discipline Leads vary depending on their discipline areas. Specific roles and responsibilities are documented in NPR 8715.1, Chapters 4 through 12. Responsibilities common to all discipline areas are:

- a. Develop Center policy for the safety and health programs assigned to them in alignment with associated NASA safety and health documents.
- b. Coordinate with appropriate personnel at the Center to assess safety and health issues and provide technical guidance on regulatory and policy requirements.
- c. Conduct independent verification of Center activities to validate that they are safe and conform to Agency, Center, and regulatory policy and requirements; authorize equipment, materials, installations, and procedures for use; specify personnel competence and qualifications; and define additional requirements and standards necessary to maintain safety.
- d. Prohibit or stop any work or activity that presents an imminent hazard to the life or limb of personnel.
- e. Stop any work that requires prior approval by an Institutional Safety Discipline Lead that has not obtained that approval.

- f. Collaborate with programs, projects, and procurement officials on how best to implement prescribed requirements and achieve program and project goals in accordance with all statutory and regulatory responsibilities.
- g. Provide technical review of requirement waivers and provide a recommendation to the approving authority.
- h. Notify the Center SMA Director of any unsafe conditions, work stoppages, policy and requirements violations, and other events and conditions that may increase the risk to the public, workforce, or property.
- i. Periodically inform the Center SMA Director of the state of the safety program they lead at their Center and risks to the satisfactory implementation of program requirements.
- j. In coordination with the Center SMA Director, inform the Chief, SMA and CHMO of any unsafe conditions, work stoppages, policy and requirements violations, and other events and conditions that may significantly increase the risk to the health of the public and workforce.

1.2.9.4 Examples of Appointed Designated Safety Leads at GRC include, but are not limited to:

- a. Authority Having Jurisdiction (AHJ)
- b. Lifting Device and Equipment Manager
- c. Pressure Systems Manager
- d. Explosives Safety Officer
- e. Fall Protection Administrator
- f. Radiation Safety Officer

### **1.3 Center Employee Involvement**

1.3.1 The Center is dedicated to the involvement of employees in the safety and health program at all levels. This commitment is demonstrated through employee involvement opportunities. Multiple opportunities are provided for employee participation in the SHMS. Some of these are listed below.

- a. Participate in the labor-management meetings.
- b. Serve on a safety committee.
- c. Serve on a mishap investigation team/board.
- d. Participate in work area safety and health inspections, assessments, and audits.
- e. Participate in hazard reviews and job hazard analyses.

f. Define safe operating procedure and work practices.

g. Provide feedback on safety and health performance and improvement opportunities.

1.3.2 No employee will be subject to restraint, interference, coercion, discrimination, or reprisal for filing a report of an unsafe or unhealthy working condition.

1.3.3 No employee will be prevented from participating in Center safety and health program activities (e.g., Safety and Health Awareness Day, wellness activities, etc.).

## **1.4 Safety Culture**

1.4.1 Safety Culture at NASA is an environment where everyone works safely, feels comfortable communicating safety issues, learns from mistakes and successes, feels confident balancing challenges and risks while keeping safety in the forefront, and trusts that safety is a priority. The GRC participates in the Agency Safety Culture Program.

1.4.2 A Center representative is assigned to the Agency Safety Culture Working Group. This working group is chartered by the Agency Office of Safety and Mission Assurance (OSMA) who sponsors the NASA Safety Culture Program. The working group's vision is to create an environment characterized by safe attitudes and behaviors, modeled by leaders and embraced by all. This environment should foster an atmosphere of open communication and mutual trust, as well as shared safety values and lessons. It should also instill confidence that we will balance challenges and risks that are consistent with our safety core value to successfully accomplish our mission. This mission is accomplished through a safety culture survey, formal and informal training, and outreach. Details on the Agency Safety Culture Program are available in NASA-HDBK-8709.24.

1.4.3 The Center has established a Contractor Safety Committee monthly meeting. The purpose is to provide a venue for communicating safety and health topics with the onsite GRC contractors. The objective is to ensure a safe and healthy work environment for all employees at GRC. This meeting provides a professional forum for the discussion of safety and health requirements, metrics, policies, and procedures by the Center 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 the Center's Health and Safety Management System action status.

1.4.4 The GRC supports a motivating partnership environment within all levels of the workforce through assistance and education of employees in health and safety. Examples are, but not limited to:

- a. Targeted safety and health promotional programs as budget and schedule allows.
- b. Safety "toolbox" meetings.
- c. Close call reporting for events or conditions with the potential to result in an accident, injury, or illness.

# CHAPTER 2: Planning

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## 2.1 Initial and Ongoing Reviews

2.1.1 While GRC has diverse work areas and hazards that are common to most industries, as well as some that are unique to aeronautics and spacecraft testing testing, GRC implements several planning activities to identify safety and health requirements, issues, and opportunities for improvement. These planning activities are broad in scope, but specifically address health and safety elements such as, but not limited to:

- a. Industrial Hygiene Exposure Assessment
- b. Facility and System Safety
- c. Process Safety Management
- d. Personal Protective Equipment (PPE)

2.1.2 Program and project managers for testing, research and development activities shall define safety, health, and mission assurance requirements during the initial phase of the program or project as described in GLPR 7120.5.10, GLPR 7120.8, and NPR 7123.1.

2.1.3 Project managers for construction and maintenance activities shall define safety and health requirements during the initial phase of the projects as described in NPR 8820.2. Maintenance and repair activities are prioritized based on safety and health considerations.

2.1.4 Contracting officers shall ensure that safety and health requirements are incorporated in Statements of Work developed for support service or construction contracts as described in GLPR 5100.1. The SHed will provide a representative to serve on a Source Evaluation Board or committee or as a technical advisor, as appropriate.

2.1.5 Requisitioners shall ensure appropriate safety and health requirements are defined as described in GLPR 5100.1. Procurements for personal protective equipment, chemicals, lifting equipment, noise generating equipment, radiation sources and pressure system components require review and approval by the SHed.

2.1.6 The Space Management Committee shall manage and coordinate facility space usage in accordance with Center requirements. Assignments consider various factors including safety and health.

## 2.2 Assessment and Prioritization

The Center uses various sources of information to inform the planning process. This information will ensure that resources are allocated based on risk associated with hazards or problems. Examples of these sources include, but are not limited to:

- a. Changing requirements
- b. Trend analysis of various data sets

- c. Lessons learned
- d. Risk management
- e. Feedback
- f. Audit and assessment results
- g. Maintenance and repair records
- h. Post incident/drill reviews

## **2.3 Implementation Plans and Allocation of Resources**

2.3.1 The Strategic Action Plan defines the Center's goals and objectives. It guides Center activities. Safety and health are directly embodied in the goals and their associated objectives; however, as an Agency value, safety has crosscutting impacts on all goals.

2.3.2 In accordance with NPR 8715.3, when GRC employees are engaged in work as part of an international partnership, the project manager shall ensure that a project-specific safety plan is developed to document safety protocols for that project to ensure employee safety and health.

2.3.3 In accordance with NPR 1800.1 and NPR 8715.1, the SMAD prepares input for the Agency's annual report to the Secretary of Labor and submits the input to the Office of the Chief Health and Medical Officer (OCHMO) and the OSMA at NASA Headquarters. In accordance with NPR 8715.1, the SMA Management Board (SMB) and the MSC reviews the Center self-evaluation results prior to submitting them as part of the Center's input to the annual report.

*Note: Independent Institutional, Facility, Operational Safety Audits (IFOSA's) and other safety and health audits run by OSMA and OCHMO may also take place at the Agency's discretion. Additionally, OSHA Voluntary Protection Program reports will be made to OSHA when GRC is involved with that program.*

## **2.4 Institutional Safety and Health Requirement Relief Process**

2.4.1 The Center Director has delegated their authority to grant relief from requirements to the SMA Director with the following understanding that the Center Director remains responsible for the relief granted and for the impact of the relief.

2.4.2 The Center Director shall not delegate the authority below the Deputy Director or Associate Director if after risk reduction measures are taken the risk of noncompliance is assessed by the appropriate Institutional Safety Discipline Lead to be more than a minor increase to personnel injury or a significant risk to property.

2.4.3 The GRC shall conduct hazards analysis to identify hazards of new and/or changes to existing facilities, equipment, and operations.

*Note: In order to identify which appropriate hazard analysis to use, the complexity, attributes, and risk to personnel/equipment will need to be considered.*

2.4.4 The Center implements an a documented waiver process providing authorization releasing a program or project from meeting a requirement after the requirement is put under configuration control at the level the requirement will be implemented in accordance with NASA-STD-8709.20, NPR 7120.5 and NPR 8715.1.

2.4.5 If relief from an institutional safety or health requirement is needed, the requestor shall initiate a GRC 83 form including support documentation, as required. The requirement relief request will be reviewed by the SME, the associated project and/or facility manager, and the SHED Chief. Final approval authority (Directorate, Center, etc.) is dictated by the requirement source. If relief is not granted, the requestor can accept the decision or invoke the dissenting opinion process described in Section 2.5.

## **2.5 Dissenting Opinion**

Dissenting opinions relative to safety and health topics are managed in accordance with GLP 1120.1, Chapter 5 of the NASA John H. Glenn Research Center Technical Authority Implementation Plan.

# CHAPTER 3: Implementation and Operation

## 3.1 Hazard Identification and Assessment

The Center has established processes to identify and assess hazards. Some of these processes are described below.

### 3.1.1 Hazard Reporting Hierarchy

Employees have several ways to report hazards (unsafe or unhealthy conditions or acts) in the workplace. The graphic in Figure 3.1 below provides an overview of the reporting sequence. At GRC, employees may report hazards or concerns by entering a NASA Mishap Information System (NMIS) Hazard Event. Reporting may be done anonymously, if desired. Hazards or concerns can also be reported directly to the SH&D or to the Center’s Ombuds representative.

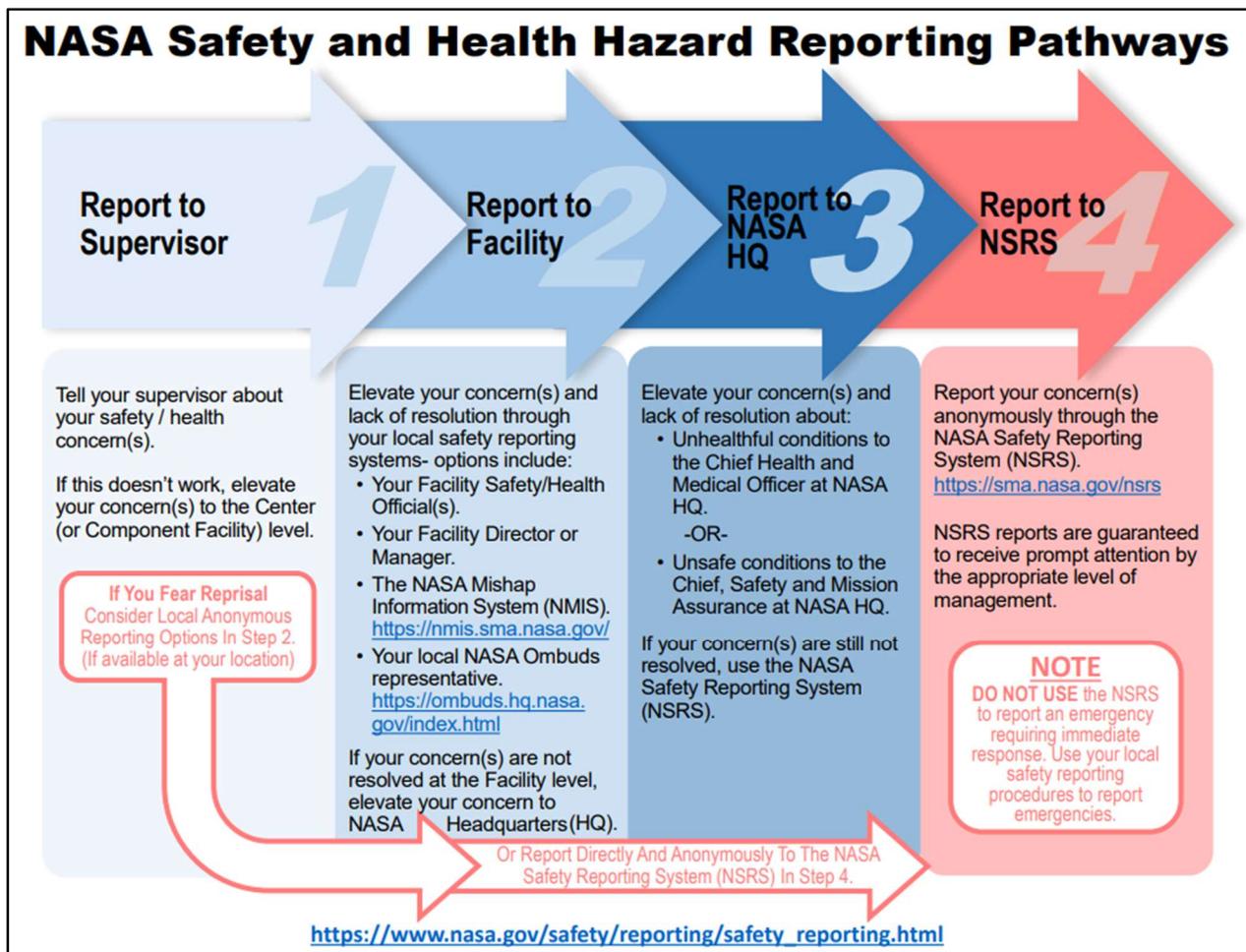


Figure 3.1. NASA Safety and Health Hazard Reporting Pathways

### 3.1.2 Institutional Risk Assessment

3.1.2.1 The Center has established a process to identify, analyze, plan, track, control, communicate and document risks associated with institutional operations and activities. This process is defined in GLPR 8000.4. Each of the institutional components of the Center (Facilities, Information Technologies, Neil A. Armstrong Test Facility Management, Center Operations, etc.) has received training in risk management.

3.1.2.2 Each GRC directorate will identify and analyze risks associated with its activities, develop plans to mitigate those risks (if needed) and track those plans to closure. Each directorate's Functional Risk Coordinator submits escalated risks to the Center Risk Manager on a quarterly basis.

### 3.1.3 Safety Permit Process

The Center has established several geographic and discipline safety committees. After the Supervisor has reviewed and approved the requested Safety Permit, these committees conduct independent verification reviews of research and operations in their assigned areas to ensure that the proposed research or operation is consistent with the dictates of sound engineering judgment and acceptable health and safety standards. A successful review will result in the issuance of a safety permit authorizing the research/operation/activity to proceed. Safety committee membership includes individuals with engineering and operational expertise, as appropriate for that area's activities, and representatives from SHED. Details on the safety committees and the safety permit process are defined in GLP-QS-8715.1, Chapter 1.

### 3.1.4 Hazard Analysis and Assessment Processes

3.1.4.1 The Center has implemented several processes to analyze and assess hazards of new and/or changes to existing facilities, equipment, and operations using processes such as: facility hazard analysis and job hazard analysis. In order to identify which appropriate hazard analysis to use, the complexity, attributes, and risk to personnel/equipment will need to be considered.

3.1.4.2 System safety is a disciplined, systematic approach to identify hazards in a system or facility that can affect humans, the environment, or mission assets. Project managers and line managers ensure that system safety activities are conducted for all projects including system acquisitions, in-house developments (research and technology), design, construction, fabrication and manufacture, experimentation and test, packaging and transportation, storage, checkout, launch, flight, reentry, retrieval and disassembly, maintenance and refurbishment, modification, and disposal. System safety is used to assess risk by examining all elements and their interaction in the operating environment. A system safety program ensures the integration of safety engineering within the facility acquisition process. Hazards analyses are used to support safety permit reviews and safety variance requests.

3.1.4.3 A Job Hazard Analysis (JHA) is used to identify the hazards associated with Center activities and tasks, assess the risk associated with these hazards, and control that risk to an acceptable level. The JHA is important because it identifies hazards and solutions for the job task. Details on the Center's JHA process are defined in the Glenn Safety Manual Chapter 15, Personal Protective Equipment and Job Hazard Analysis, GLP-QS-8715.1. The JHA shall be:

- a. Prepared and signed by the affected work crew in conjunction with their supervisor.
- b. Updated if there are changes in the conditions of the job/task.

3.1.4.4 Employees using and handling laboratory-scale quantities of hazardous chemicals or biological materials shall develop Laboratory Standard Operating Procedures (LSOP) to document safety and health considerations, safe practices and controls measures to ensure adequate protection. Details on LSOPs are defined in GLP-QS-1800.1, Chapter 25.

3.1.4.5 Hazard Analysis/Exposure Assessments of Significant Changes, New Processes, and Non-Routine Tasks:

- a. GRC SMA safety and health shall:
  - (1) Be involved in the design, modification, and review of new processes and construction, process changes, facility modifications, and new operations.
  - (2) Participate as necessary on Design Review Boards.
  - (3) As applicable, have signatory requirements on design packages before the packages are released.
- b. Present, track, mitigate and/or accept hazards deemed high risk or critical risks by the senior GRC management before the start-up of any process, facility or test.
- c. Document residual risks for hazards that are accepted. Procedures for risk ranking and acceptance are located in GLPR 8000.4.
- d. When changes occur in PSM covered areas, all design, modification, and reviews shall be subject to PSM requirements. The PSM shall be implemented and approved by the Center director prior to bringing on-site highly hazardous materials, as identified in OSHA Process Safety Management regulations (ref: OSHA 1910.119).

### 3.1.5 Design Review and Management of Change

3.1.5.1 In design reviews, project stakeholders review the design to ensure the design adequately addresses the project scope, objectives, and technical requirements. Representatives from the SHED and the design team participate in these reviews to ensure compliance with safety and health requirements.

- a. Construction projects undergo design reviews in accordance with NPR 8820.2.
- b. Facility and equipment new design and/or changes in accordance with NPR 8820.2.
- c. Aerospace projects design reviews in accordance with NPR 7120.5 or NPR 7120.8, as required.

3.1.5.2 During the safety permit review process, supervisors ensure that the hazards associated with the proposed activity have been identified and controlled to an acceptable level. The area safety committee reviews documentation to ensure and independently verify that hazards associated with the proposed activity have been identified and controlled to an acceptable level. If the activity changes (process, hardware, systems, software, etc.), the hazards analysis will be revised and resubmitted, along with a safety permit change request, to the safety committee for review. The safety permit process is defined in GLP-QS-8715.1, Chapter 1.

3.1.5.3 The Center has implemented configuration management policies and processes to enable facility managers and systems managers to operate and maintain facilities and systems safely and reliably.

## **3.2 Hazard Prevention and Control**

### **3.2.1 Hierarchy of Controls**

3.2.1.1 When the risk associated with a particular hazard is unacceptable, controls will be implemented to reduce the level of risk to an acceptable level. It is preferable that hazards be identified and controlled as early as possible (during the concept or design phase) to minimize implementation costs.

3.2.1.2 In the hierarchy of worker protection controls against occupational hazards, the preferred solution is bullet a below, to eliminate the hazard. However, if that is not possible, then the following bullets b-e should be sought that can be built into the work environment and, therefore, does not require individuals behaviors wearing personal protective equipment, bullet f.

- a. Hazard Elimination
- b. Substitution of a less hazardous material, process, operation or equipment
- c. Engineering controls (Local exhaust ventilation, glove boxes etc.)
- d. Personnel warnings (Signs, Labels, Alarms etc.)
- e. Administrative controls (Training, Employee rotation, etc.)
- f. Personal protective equipment

### **3.2.2 Procurement**

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

3.2.2.2 The CO shall ensure contract terms and conditions comply with NASA GRC safety and health policies and procedures. Ensure that solicitations and contracts clearly inform contractors what their obligations are with regard to GRC 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, GLP-QS-8715.1, and GLP-QS-1800.1; and always cite to/reference the most recent revision of the particular Procedural Requirement.

3.2.2.3 The COR shall ensure when entering into contracts and agreements, NASA has identified terms, conditions and expectations for protecting the workforce from all hazards regardless of location while performing official NASA duties.

*Note: If the Center enters into an out-grant with another party, in which the other party maintains exclusive use and control over that real property, the Center is not responsible for the risks to the other party's workforce arising from hazards the other party creates or controls, unless otherwise specified in the out-grant. The Center remains responsible for protecting the NASA workforce from all hazards, including those created or controlled by the party of the out-grant, and responsible for the impact that hazards NASA creates or controls may have on the party of the out-grant.*

3.2.2.4 The CO shall serve as the primary contact for resolution of contractual issues concerning safety and health requirements.

3.2.2.5 The CO shall monitor, support, and manage the applicable elements of GRC's SSC contractor's safety and health program.

3.2.2.6 The CO shall participate in health and safety performance review meetings where the following elements will be presented, but not limited to:

- a. The status of safety and health corrective actions resulting from inspections, audits, and reviews from outside agencies.
- b. The injury/illness incident rates and incident summaries
- c. The status of any ongoing mishap investigations
- d. Verifying the submittal of the contractor's annual safety and health self- assessment (per contract).
- e. The status of safety training and certifications

3.2.2.7 In accordance with GLPR 5100.1, the requisitioner shall coordinate with the SMAD to obtain appropriate safety requirements when procuring products and services. This may include developing a statement of work or completing forms GRC 1707 and/or GRC 8095. These forms are used to assess the proposed procurement and document specific safety and health requirements. Specific attention is given to the acquisition of chemicals, explosives, sources of ionizing and non-ionizing radiation, pressure vessel/system components, lifting devices/equipment, and personal protective equipment.

3.2.2.8 Procurement officials and P-card holders are responsible for:

- a. Including in contracts, acquisitions, and P-card purchases the requirements of this GLPR herein.
- b. Ensuring the appropriate Institutional Safety Discipline Leads are included in the procurement process or review of P-card purchases prior to being initiated so that they can conduct appropriate reviews and provide guidance as required.

### 3.2.3 Contractors

3.2.3.1 Once a support service contract is awarded, the contractor, 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 contract review performance 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 the Center's Health and Safety Management System
  - (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 standards, as applicable, that support the Center's Health and Safety Management System.
- 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 GRC on an annual basis.
- i. Submit an Annual Safety and Health Self-Evaluation to NASA GRC SMA (SHeD), which includes OSHA compliance status, injury/illness performance, trend & injury analysis, accomplishments, and goals for the next year.

*Note: Injury and illness rates that are found to be above average will require procedures that ensure that all employees are provided effective protection on the worksite.*

- j. Establish procedures to protect NASA GRC 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 the Center's Health and Safety Management System requirements.
- l. Enforce safety and health rules in accordance with the company work practices and policies.
- m. Prepare and submit a Health and Safety Plan (HASP) to the contracting officer in accordance with the contract requirements.
  - (1) The HASP defines the site-specific and task specific hazards and how the contractor will mitigate those hazards when performing work at GRC.
  - (2) Construction contractors cannot start work until a preconstruction meeting is held and the HASP is accepted.
  - (3) Discussion of safety and health requirements is one component of the preconstruction meeting. Each SSC will periodically review its HASP and update it accordingly.

3.2.3.2 Contracting officers and their representatives shall monitor contractor performance to ensure compliance with the safety and health contractual requirements, and conduct evaluations of contractor performance as defined in GLPR 5100.1.

### 3.2.4 Emergency Preparedness and Response

3.2.4.1 In accordance with NPR 8715.2, the Center's Office of Protective Services (OPS) has developed and implemented an EMP that assigns responsibilities, defines requirements and provides consistent practices to ensure the readiness, interoperability, and compatibility of emergency plans and capabilities of the organizations and agencies tasked to respond in the event of an emergency. The OPS has also developed and implemented a COOP that provides planning and program guidance to ensure that GRC operations are performed efficiently with minimal disruption, especially during an emergency. Safety and health considerations are incorporated in both plans and in the response protocols. Annual exercises are conducted to ensure plans are accurate and up to date.

3.2.4.2 The Emergency Preparedness Manager (EPM) coordinates emergency preparedness with the local emergency responders, providing information on routine and unique hazards at the Center. The AHJ monitors firefighting resources and response times as provided by the EPM. Local emergency responders periodically conduct training exercises at GRC.

3.2.4.3 In accordance with GLP-QS-8715.1, Chapter 27, emergency evacuation plans are developed for each building that contains more than 10 employees, and a generic plan covers facilities with fewer than 10 employees.

3.2.4.4 The GRC contractors, consistent with the requirements stated/referenced in their particular

contracts, shall establish additional emergency preparedness plans as needed and appropriate for their work.

- a. The emergency procedures specific to GRC contractors shall be communicated and practiced annually.
- b. Documentation and critique of evacuation drills and recommendations for improvement shall be completed and corrective actions tracked to completion.

3.2.4.5 Supervisors shall review applicable GRC Building Evacuation Plans with their employees.

3.2.4.6 Safety Training in the Execution of Emergency Procedures exercises are held annually.

### **3.3 Certification, Qualification, Training, Awareness, and Competence**

#### **3.3.1 Training and Awareness**

3.3.1.1 New civil service employees, SSCs, and students shall complete the “Basics of Environmental, Health and Safety Training” in the System for Administration, Training, and Educational Resources for NASA (SATERN) when they come to work at GRC. New supervisors shall complete “Safety and Health Awareness Training for Supervisors” which is part of the New Supervisor Curriculum.

3.3.1.2 In accordance with NPR 3410.2 and GLPR 3410.1, supervisors shall identify the knowledge, skills, and abilities required to effectively perform specific tasks and validate employee training needs, including safety and health training needs.

3.3.1.3 The SHeD has developed a matrix of required and recommended safety and health training to assist supervisors and employees identify training needs. Additional guidance on safety and health training and certification is available in GLP-QS-8715.1, Chapter 2.

3.3.1.4 The SHeD will host safety and health awareness events each year to promote awareness of safety, health and wellness topics. Examples of such events include the annual Safety and Health Awareness Event, health fairs, etc.

3.3.1.5 The supervisors for civil servants shall use the Qualifications, Certifications and Requirements Database (QCARD) system to manage all safety and health certification and qualification requirements. The QCARD is an Agency collaborative tool used to manage NASA personnel’s safety and health certification data. When medical surveillance is required, SSC supervisors will also use the QCARD system for their employees. If medical surveillance is not required, supervisors may elect to use their company provided system. Additional guidance on safety and health certifications and qualifications are available in GLP-QS-8715.1, Chapter 2.

#### **3.3.2 Certification/Qualification**

3.3.2.1 The supervisors shall use the QCARD system to manage all Safety and Health certifications and qualification required for their employees. Additional guidance on safety and health certifications and qualifications are available in GLP-QS-8715.1, Chapter 2. Certification criteria for specific tasks are defined in GLP-QS-8715.1 and GLP-QS-1800.1.

3.3.2.2 Supervisors within the SHeD will ensure that the safety and health staff are competent to perform their assigned duties. Personnel with professional certifications (e.g., Certified Safety Professional, Certified Industrial Hygienist, and Certified Health Physicist) are available to support safety and health program implementation.

3.3.2.3 In addition, supervisors will ensure that employees who provide safety and health training to others are competent in the subject matter being presented and in training presentation.

### **3.4 Communication**

3.4.1 The Center utilizes several avenues to communicate safety and health information. The requirements of the Glenn SHMS are communicated to both civil servants and contractor personnel through their organizational line management.

3.4.2 The Center Safety Bulletin, published once each month, is a valuable source for disseminating safety, occupational health, and mission assurance related information, policy, practices, and lessons learned at GRC.

3.4.3 Safety and health information is maintained on a web site so it is accessible to Center employees when needed. Safety and health topics are presented at the quarterly Supervisors Meeting.

3.4.4 The Contractor Safety Committee is chartered by the SMB. It provides a venue for communicating safety and health topics with the on-site GRC contractors with the objective of ensuring a safe and healthy work environment for employees at GRC.

### **3.5 Document and Record Management**

#### **3.5.1 Documentation**

The Center documents its safety and health requirements in various GLPDs and GLPRs, GLP-QS-8715.1, and GLP-QS-1800.1. These documents are maintained in the Business Management System Library.

#### **3.5.2 Document Management**

The Center documents are managed in accordance with GLPR 1410.1. In addition, the content of the GLP-QS-8715.1 and GLP-QS-1800.1 are managed in accordance with GLWI-QS-1410.1. Document reviews and/or revisions may be undertaken before the expiration date, as needed in response to assessment/inspection results, data trending results, or changes in Agency requirements or federal regulations.

#### **3.5.3 Records Management**

The Center records associated with safety and health requirements and processes shall be managed in accordance with GLPR 1440.1.

# CHAPTER 4: Evaluation and Corrective Action

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## 4.1 Monitoring and Measurement

4.1.1 The GRC is responsible for reporting annually on the state of the safety and health of their Center and of their safety and health programs to the Chief, SMA and the CHMO to provide a clear picture of the full risk posture of the Center relative to the safety and health requirements. To achieve this, GRC shall:

- a. Conduct annual safety and health inspections to identify hazards; evaluate existing control measures; and verify that work practices, administrative controls, and personal protective equipment use policies are being followed. Responsibility for this element is Code QS and Supervisors.
- b. Verify the safety and health management program is implemented to achieve its goals through monitoring the appropriate performance measures by conducting an annual assessment to identify improvements and required adjustments to ensure the effectiveness of the safety and health management program and achievement of program goals. Responsibility for this element is Code QS.
- c. Ensure that NASA contracts are written to appropriately incorporate the requirements of this GLPR based on the hazards associated with the work being performed. Responsibility for this element is Code C.
- d. Hold contractors accountable for the safety of their employees, their services, their products, and for complying with NASA and Center safety requirements. Responsibility for this element is Code C.
- e. Maintain communication relative to health and safety concerns, issues and/or news to all on-site workers (civil servants, NASA contractors, and tenants). Responsibility for this element is Code C, the Contracting Officer and Supervisors.
- f. Make all workers on the site aware of all worksite hazards whether controlled by NASA or a tenant and the methods and procedures needed to control exposures to them. Responsibility for this element is Supervisors and Project Managers.
- g. Complete written annual SHMS evaluations that contain specific recommendations, time lines, assignment of responsibility, and how the effectiveness of the SHMS is monitored and measured by the end of each calendar year. Responsibility for this element is a contract-specific element.

4.1.2 Exposure assessments are conducted to evaluate workplace safety and health hazards, to determine the extent of personnel exposure, and to validate that control measures are adequate and effective. Typical exposure assessments performed at GRC include chemical monitoring, noise surveys, ergonomic assessments, radiation surveys, indoor air quality assessments, food sanitation inspections, etc. Details on the hazard assessment/exposure assessment program are documented in GLP-QS-1800.1.

4.1.3 Ventilation surveys are performed in accordance with GLP-QS-1800.1, Chapter 7, to assure that ventilation systems are operating per design guidelines.

4.1.4 Routine wellness physicals are performed to monitor employee health and wellness. Medical surveillance exams are provided to personnel who may be exposed to workplace hazards. Occupational health assessments are provided to personnel who need to medically qualify to perform their job duties. Details of the Surveillance exams are documented in NPR 1800.1, Appendix C.

4.1.5 Targeted safety assessments are conducted periodically to focus attention on a particular area of concern. Examples of targeted safety assessment include fall hazards, metal grating integrity, and design compliance of cranes.

4.1.6 Employee injuries and illnesses are recorded in the NMIS and investigated as defined in Section 4.2.

4.1.7 The Mishap Program Manager prepares a summary of occupational injuries and illness annually in compliance with 29 CFR 1904.

## **4.2 Incident Investigation**

4.2.1 When an incident occurs, mishaps and close calls are reported, investigated, and tracked in NMIS in accordance with NPR 8621.1 as well as the Mishap Preparedness and Contingency Plan (MPCP) for GRC, or the program specific MPCP, as applicable.

4.2.2 The responsible organization investigates the incident to identify the causes, develop a corrective action plan and track the corrective action performance and completion in NMIS.

4.2.3 Any lessons learned associated with an incident are documented in NMIS.

4.2.4 The Mishap Program Manager monitors corrective action activities to determine if they were carried out according to the plan and reports noncompliance.

4.2.5 The Mishap Program Manager verifies actions are correctly recorded in NMIS.

## **4.3 Audits and Assessments**

4.3.1 The Center maintains AS9100 and ISO 9001 certifications and participates in both internal and surveillance audits. Safety and health are elements of these audits.

4.3.2 The Center's safety and health processes and procedures are routinely audited by NASA Headquarters. In accordance with NPR 8705.6, the Agency Audits and Assessments Office conducts the Institutional Facilities and Operations Safety Audit (IFOSA) to verify implementation of applicable Federal, state, and local safety and health statutes and regulations and NASA SMA requirements. In accordance with NPR 1800.1, the OCHMO conducts an audit to assess compliance with applicable regulations and requirements for the following disciplines: occupational medicine, industrial hygiene, health physics, food sanitation, fitness, and employee assistance.

4.3.3 In accordance with NPR 8705.6 and NPR 1800.1, the SHeD conducts self-assessments annually to verify the implementation and effectiveness of the safety and occupational health programs. Assessment results are presented to the SMB and MSC. Action plans are developed and implemented for identified improvement opportunities. Results of safety assessments and occupational health assessments are submitted to the NASA Safety Center and the OCHMO, respectively.

#### **4.4 Inspections**

4.4.1 Center managers and supervisors will routinely perform self-inspections of work areas and activities monthly to identify hazards and ensure compliance with safety and health requirements. The entire site covered at least quarterly. Construction sites, cover the entire site weekly.

4.4.2 The SHeD provides oversight by inspecting facilities and construction sites to identify hazards and ensure compliance with safety and health requirements.

4.4.2.1 Deficiencies are documented in System for Tracking Audits/Assessments and Reviews (STAR).

4.4.2.2 These oversight inspection processes are documented in the GLP-QS-8715.1, Chapters 24 and 17, respectively.

#### **4.5 Corrective and Preventive Actions**

4.5.1 Reporting and tracking corrective and preventive actions is an essential element in maintaining and improving the quality of products and services. The Center utilizes two systems for reporting and tracking findings and corrective and preventive actions related to safety and health audits, assessments, and inspections:

- a. Corrective and Preventive Action (CAPA) Reporting System; and
- b. STAR

4.5.2 The Center has implemented a corrective and preventive action process to track problems/potential problems that affect multiple organizations, processes, or the Center's ability to meet its milestones. The CAPA Reporting System, a web-based, closed-loop system that facilitates identification and resolution of problems and potential problems affecting the Center's ability to perform its mission. The corrective and preventive action process is documented in GLP-Q- 1280.2.

4.5.3 As stated in Section 4.4, facility and construction inspection results are documented in STAR. This database tracks each finding and its associated corrective action plan to closure.

4.5.4 The Agency utilizes the STAR to record and track to closure findings related to the IFOSA and OCHMO audits. The auditing authority uses the STAR to verify that findings have been closed.

## **4.6 Feedback to the Planning Process**

### **4.6.1 Lessons Learned**

The Center has procedures to identify, document, review and distribute lessons learned as detailed in GRC Knowledge Management Web site. The NMIS is also utilized to capture lessons learned generated in response to mishaps and close calls. Information from these processes is used to inform the planning processes.

### **4.6.2 Trend Analysis**

The SHeD performs trend analyses utilizing various data sources. Examples of these data sources include mishap information, inspection results, exposure assessment data, and safety and health records. The analyses help identify improvement initiatives and areas of concern that need attention. Analysis results are presented to the SMB and MSC.

# CHAPTER 5: Management Review

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## 5.1 Management Review Process

5.1.1 The goal of the programs discussed in this GLPR are to prevent injuries and illnesses and ensure compliance with applicable laws and NASA safety standards. To that end, these programs are designed to document and implement proper procedures and work practices to ensure a safe and healthful work environment.

5.1.2 Each program shall be thoroughly reviewed annually, and quantifiably scored to evaluate its overall effectiveness and to recommend improvements. Scoring metrics shall be reported to the SMA and Center Director following each review cycle as required by annual safety and health review requirements found in in this GLPR. These programs are living documents and shall be updated as required to ensure continual improvement and effectiveness.

5.1.3 Elements used in the management review process are:

- a. In accordance with GLPR 8000.4, the Center directorates elevate top institutional risks to the MSC for awareness and action, as appropriate. Institutional risks with significant safety consequences are also vetted through the SMB in preparation for the MSC review. These risk reviews occur quarterly, as a minimum. A prioritized list of programmatic and institutional risks is provided to GRC management on a quarterly basis. Top safety and mission assurance risks will be escalated to the Agency Office of Safety and Mission Assurance.
- b. In accordance with GLC-CMC-MS-C-SMB-8700.1, the SMB meets monthly to review the SHMS and assure the Center continues to provide safe operations and a healthy work environment. The SMB is chaired by the Director of SMA and is comprised of representatives from programmatic and institutional stakeholders. The SMB reviews safety and health program status, mishap and inspection data, audit and assessment results, corrective and preventive action status, and other related topics. Outputs from the SMB are presented to the MSC.
- c. In accordance with GLC-MS-C-1000.1, the MSC meets monthly to review, approve and advise on Center institutional plans, performance goals, objectives, and metrics through functional area reviews. The MSC is chaired by the Associate Center Director and is comprised of representatives from the institutional directorates. Information from the SMB meetings is submitted monthly to the MSC. A special MSC meeting is held semi-annually to conduct a more comprehensive review of the SHMS. Outputs from the MSC are presented to the SAC.
- d. In accordance with GLC-SAC-1000.1, the SAC meets quarterly to provide Center-level strategic planning of programmatic, institutional, financial, and workforce resources. The SAC provides oversight in managing and evaluating current mission and institutional activities at the Center to achieve the goals set forth in the Agency's Strategic Plan and the Glenn Strategic Action Plan. The SAC is chaired by the Center Director and is comprised of the senior Center leadership.

## **5.2 Management Review Outcomes and Follow Up**

At the conclusion of the reviews described in Section 5.1, meeting minutes are distributed to document discussion topics and decisions. Action items are assigned, as appropriate, and tracked to closure.

## Appendix A: Acronyms

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AHJ	Authority Having Jurisdiction
BMS	Business Management System
CAPA	Corrective and Preventive Action Reporting System
CFR	Code of Federal Regulations
COOP	Continuity of Operations Plan
EMP	Emergency Management Plan
E.O.	Executive Order
EPM	Emergency Preparedness Manager
GLC	Glenn Charter
GLP	Glenn Procedure
GLPD	Glenn Policy Directive
GLPR	Glenn Procedural Requirements
GLWI	Glenn Work Instruction
GRC	Glenn Research Center
HASP	Health and Safety Plan
IFOSA	Institutional Facilities and Operations Safety Audit
JHA	Job Hazard Analysis
LSOP	Laboratory Standard Operating Procedure
MPCP	Mishap Preparedness and Contingency Plan
MSC	Mission Support Council
NMIS	NASA Mishap Information System
NPR	NASA Procedural Requirements
OCHMO	Office of the Chief Health and Medical Officer
OPS	Office of Protective Services

OSHA	Occupational Safety and Health Administration
QCARD	Qualifications, Certifications and Requirements Database
SAC	Strategic Advisory Council
SATERN	System for Administration, Training, and Educational Resources for NASA
SHeD	Safety and Health Division
SHMS	Safety and Health Management System
SMA	Safety and Mission Assurance
SMAD	Safety and Mission Assurance Directorate
SMB	Safety and Mission Assurance Management Board
SME	Subject Matter Expert
STAR	System for Tracking Audits/Assessments and Reviews

## Change History

Change	Date	Description/Comments
Basic	2/27/2017	Baseline
A	09/12/2022	Changes include: <ul style="list-style-type: none"> <li>- P.2 Applicability – Added additional personnel/people.</li> <li>- P.4 Applicable Documents and Forms – updated</li> <li>- Updated OSHA and SHMS requirements.</li> <li>- Chapter 1 updated titles, added policy language</li> <li>- Added 1.2.1.k imminent danger sentence, 1.4 removed “triennial”</li> <li>- Chapter 2, 2.15. added noise generating, rad sources to requisitioner considerations. reformatted.</li> <li>- Section 3.2.4 updated section and included EPM responsibilities, and clarified 3.2.4.3. Section 3.3.1.4 removed “four”.</li> <li>- Chapter 4 added written annual evaluation</li> <li>- Section 4.2 removed reference to Chapter 21 and added NPR 8621 and GRC Mishap Preparedness and Contingency Plan (MPCP).</li> <li>- Updated acronyms.</li> <li>- Updated to meet requirements of GLPR 14101.1</li> </ul>