

Statement of Work (SOW)
for
Environmental, Safety, Health, and Mission Assurance
(ESHMA)
Support Services

National Aeronautics and Space Administration (NASA)

John H. Glenn Research Center (GRC)

Table of Contents

ESHMA Support Services

Table of Contents.....	2
1. Purpose.....	8
2. Scope – General.....	8
2.1 Base Effort.....	16
2.2 Indefinite Delivery Indefinite Quantity (IDIQ)	16
3. Scope Specific Requirements.....	16
3.1 Environmental.....	16
3.1.1 Environmental Management System (EMS) Support.....	17
3.1.2 Emergency Planning and Community Right to Know Act (EPCRA) Support.....	18
3.1.3 Air Pollution Control and Stratospheric Ozone Protection.....	18
3.1.4 Implementation of Small-Scale Environmental Sampling.....	19
3.1.5 National Environmental Policy Act (NEPA) Support	19
3.1.6 Natural Resource Management Support	20
3.1.7 Stormwater and Wastewater Support.....	20
3.1.8 Environmental Spill, Mishap, and Incident Response	21
3.1.9 Above Ground Storage Tank (AST) Support	22
3.1.10 Underground Storage Tank (UST) Support.....	23
3.1.11 Sustainability Support	23
3.1.12 Waste Management Support.....	24
3.1.13 Cultural Resources Management (CRM) Support.....	26
3.1.14 Training	27
3.1.15 Electronic Databases.....	27
3.1.16 Applicable NASA Policy Documents – For Reference Only.....	27
3.2 Aero/Space Systems and Ground Support Equipment Mission Assurance	28

3.2.1	General Requirements.....	28
3.2.2	System Safety.....	30
3.2.2.1	Safety Documentation.....	31
3.2.2.2	Mission Support	31
3.2.3	Reliability and Probabilistic Risk Assessment (PRA)	31
3.2.3.1	Reliability and Maintainability	31
3.2.3.2	Probabilistic Risk Assessments and Plans	32
3.2.4	Electrical, Electronic, and Electromechanical (EEE) Parts	32
3.2.4.1	EEE Parts Specification and Planning	32
3.2.4.2	Additional EEE Parts Activities.....	32
3.2.5	Quality Assurance.....	33
3.2.5.1	Program/Project Quality Assurance (QA) Support.....	33
3.2.5.2	Quality Management Systems, Plans, and Processes.....	33
3.2.5.3	QA Activities	33
3.2.5.4	Procurement Quality Assurance (PQA).....	33
3.2.6	Software Assurance Software Safety (SASS).....	34
3.2.6.1	Program/Project SASS Support	34
3.2.6.2	SASS Activities	34
3.2.6.3	Capability Maturity Model Integration (CMMI) Level 2 Appraisals	36
3.2.7	Complex Electronics (CE) / Flight Programmable Logic Assurance (FPLA).....	36
3.2.7.1	Program/Project CE/FLPA Support.....	36
3.2.8	Welding/Nondestructive Evaluation/Test (NDE/NDT).....	36
3.2.8.1	NDE/NDT Support	36
3.2.8.2	Welding Activities	36
3.2.9	Risk Management	37
3.2.9.1	Continuous Risk Management (CRM) Support.....	37
3.2.9.2	Additional Facilitation Activities.....	37
3.2.9.3	CRM Trainer Certification.....	37

3.2.9.4	Risk-Based Acquisition Management (RBAM) Implementation	37
3.2.10	NASA Advisories and Government-Industry Data Exchange Program (GIDEP)/Acute Launch Emergency Reliability Tip (ALERT) System	38
3.2.10.1	GIDEP/ALERT System Usage.....	38
3.2.10.2	GIDEP/ALERT File/Information Maintenance	38
3.2.10.3	ALERT Distribution/Coordination	38
3.2.10.4	GIDEP/ALERT Methodology Compliance	38
3.2.11	Inspection, Measuring, and Test Equipment (IMTE)	38
3.2.12	Independent Assessment and Audits	39
3.2.13	Assurance Methodologies and Technologies.....	40
3.2.13.1	Advance the State-Of-The-Art Assurance Technologies	40
3.3	Operational Safety.....	40
3.3.1	General Requirements.....	40
3.3.1.1	Mishap, Close Call Reporting, Investigation, and Recordkeeping	41
3.3.1.2	Center Emergency Preparedness, Response, and Recovery	41
3.3.1.3	Safety Education, Training, and Certification.....	41
3.3.1.4	GRC Safety Management Resources	41
3.3.1.5	GRC Safety Program Compliance	42
3.3.2	Facility System Safety	42
3.3.2.1	Construction Safety Program	42
3.3.2.2	Facility Inspection Program	42
3.3.2.3	Personal Protective Equipment (PPE) and Job Hazard Analysis Program	42
3.3.2.4	Fire Protection and Prevention Program.....	43
3.3.2.5	Fall Protection Safety Program	43
3.3.2.6	Electrical Safety Program	43
3.3.2.7	Lock Out/Tag Out (LOTO) Program	43
3.3.2.8	Shop Safety	43
3.3.2.9	Regulatory Permit Requirements	43
3.3.2.10	Pressure and Process System Safety	43

3.3.2.11	Process Safety Management	44
3.3.3	Test Operations	44
3.3.3.1	Safety Permit Program	44
3.3.3.2	Pressure System Safety Program	44
3.3.3.3	Gas and Liquefied Gas Safety Program	44
3.3.3.4	Explosives, Propellant, and Pyrotechnics Safety Program	44
3.3.3.5	Lifting Device and Equipment (LDE) Program.....	44
3.3.4	Organizational Safety Support.....	45
3.3.4.1	Armstrong Test Facility	45
3.3.4.2	Facility Testing Division (FT) Safety Support.....	45
3.3.4.3	Logistical and Technical Information Division (LTID) Safety Support.....	45
3.3.4.4	Process Safety Management (PSM) Audit.....	45
3.4	Occupational Health	46
3.4.1	General Requirements.....	46
3.4.1.1	Health Education, Training, and Certification	46
3.4.1.2	GRC Health Management Resources.....	46
3.4.1.3	Employee Involvement and Outreach.....	46
3.4.2	Environmental Health	47
3.4.2.1	Industrial Hygiene Services	47
3.4.2.2	Chemical Management Programs	47
3.4.2.3	Chemical Sampling and Analysis	47
3.4.2.4	Food Sanitation	48
3.4.2.5	Institutional Operational Safety Support.....	48
3.4.2.6	Occupational Health Equipment and Laboratory Coordination.....	48
3.4.2.7	Automated External Defibrillators (AED) Program	48
3.4.2.8	Health Physics.....	49
3.4.3	Medical, Health and Wellness	49
3.4.3.1	Medical Services.....	49

3.4.3.2	Electronic Health Records (EHRS).....	51
3.4.3.3	Employee Assistance Program.....	52
3.4.3.4	Wellness and Fitness Center	52
3.5	HQ Health and Safety	53
3.5.1	Description:.....	53
3.5.2	Safety and Occupational Health Program Management Support	53
3.5.2.1	Hazard Identification subtasks	53
3.5.2.2	Provide Safety & Health Training per the HQ specific safety training plan,.....	54
3.5.2.3	Safety and Health Compliance Program Development.....	54
3.5.3	Industrial Hygiene and Environmental Laboratory Sampling and Analyses	55
3.5.3.1	Upon request:	55
3.5.3.2	On a case-by-case basis:	56
3.5.4	General Safety and Health Program Requirements	57
3.5.5	Documentation, References, and Records Management	58
3.5.6	Performance Metrics:.....	59
3.5.7	Experience	59
3.5.8	Task Conditions:	60
4.	Contract Administration and Business Management	60
5.	Communications	61
6.	Innovation Plan.....	61
7.	Regulatory Changes	62
8.	Prioritization of Work	62
9.	General Administrative Requirements	62
9.1	Staff Training and Certifications.....	62
9.2	Base Effort and IDIQ Technical Representatives	62
9.3	Special Projects/Tasks	62
9.4	Deliverables	62
9.4.1	Weekly Progress Report	63

9.4.2	Monthly Technical Activity Report	63
9.4.3	Task Order Status Report.....	63
9.4.4	Contractor Financial Management Reports	63
9.4.5	Financial Status.....	64
9.4.6	Organizational Conflicts of Interest (OCI)	64
9.4.7	Reports and Deliverables Table	64
10.	Appendix A: Acronyms.....	66
11.	Appendix B: Applicable Documents.....	68
11.1	NASA Glenn Directives	68
11.2	GRC Program Manuals.....	68
11.3	NASA Procedural Requirements (NPR):.....	68
12.	Appendix C: Reference Documents	69
12.1	Federal Regulations	69
12.2	Codes of Federal Regulations (CFR).....	69
12.3	Executive Orders (EO).....	69
12.4	NASA Policy Directives (NPD)	70
12.5	NASA Procedural Requirements (NPR).....	70
12.6	NASA Standards (STDs).....	71
12.7	GRC Procedural Requirements (GLPR).....	71
12.8	GRC Work Instructions, Handbooks, and Other Reference Documents	72

STATEMENT OF WORK J.1 FOR
ENVIRONMENTAL, SAFETY, HEALTH, and MISSION ASSURANCE
(ESHMA)

Support Services

1. Purpose

The purpose of this solicitation is to obtain support services in four broad technical areas: Environmental, Institutional Operational Safety, Occupational Health, Aero/Space Systems and Ground Support Equipment Mission Assurance. Services will be required at NASA Glenn Research Center (GRC), which includes Lewis Field (LF) and Armstrong Test Facility (ATF), and at NASA Headquarters (HQ). Services may be required at any other NASA facility once approved and placed on the contract. These services will enable participating centers to comply with NASA policies and Federal regulations in each of the five technical areas.

2. Scope – General

The Contractor shall provide the necessary management, personnel, equipment, facilities, materials, supplies, and services, except as may be expressly set forth in the contract as Government Furnished Property, to effectively implement, control, track, perform and sustain all requirements of J.1 Statement of Work.

The Contractor shall provide support services for Environmental, Institutional Operational Safety, Occupational Health, and Mission Assurance support services at GRC; Institutional Operational Safety and Occupational Health support services at NASA HQ.

GRC services shall support all institutional facilities and the Mission Assurance aspects of space flight and aeronautics activities at GRC's LF in Cleveland, Ohio, and ATF in Sandusky, Ohio. For this document, unless otherwise noted, a reference to GRC means that Sections 3.1, 3.2, 3.3, and 3.4 of the J.1 Statement of Work are applicable to both LF and ATF.

HQ services shall support safety and health requirements of NASA HQ located in Washington DC, as detailed in Section 3.5 of the J.1 Statement of Work.

In two of the areas in this solicitation, GRC has developed program manuals detailing program requirements, implementation approach, metrics, and verification approach for all regulations and policies GRC and the Contractor shall abide by, operate under, and implement. The general scope of work for all areas within the J.1 Statement of Work (SOW) follows:

- A. For Aero/Space Systems Mission Assurance and Ground Support Equipment area, there is no specific program manual. The work primarily involves Mission Assurance activities in support of Aero/Space programs and projects managed by GRC. For space systems assurance activities, the work involves ensuring that space flight programs and projects comply with Space Assurance Requirements (SAR), GLPR 7120.5.30.

B. Institutional Operational Safety program development, implementation, compliance assurance, and verification based on the details found in the following documents:

- 1) Safety & Health Function. The Contractor shall utilize proactive and innovative safety practices on a continual basis throughout the contract period. The Contractor's Health and Safety Program shall comply with Occupational Safety and Health Administration (OSHA) Regulations and the GRC Safety & Mission Assurance (SMA) Requirements which are defined in the Glenn Safety Manual (see General Library for GLP-QS-8715.1) and the Glenn Occupational Health Programs Manual (see General Library for GLP-QS-1800.1) as well as NPR 8715.1B NASA Safety and Health Programs and NPR 1800.1D NASA Occupational Health Program Procedures and NASA NPD 1850.1 NASA Medical System Quality Assurance.

The Contractor's personnel and subcontractors shall only perform work for which they are specifically trained and certified including medical clearance, as required by NPR 1800.1D NASA Occupational Health Program Procedures, Appendix C Physical Exam Matrix. In addition, the Contractor's staff shall maintain a safe and clean worksite and report all incidents and near-misses to Contractor supervisors. An effective job hazard analysis (JHA) program shall be implemented to document, control, and communicate hazards identified during the execution of tasks performed under this SOW. Contractor employees shall be knowledgeable in the hazards and risks associated with work plans and job tasks, and the controls used to reduce the risks to an acceptable level. JHAs shall be readily available to personnel and associated with work plans and jobs tasks.

- a) Safety Inspections & Plans. The Contractor shall conduct and document periodic safety and health inspections of all job sites, tasks, and activities. All findings from these inspections shall be documented and addressed utilizing a closed loop corrective action process and be available to the Government for review.
- b) The Contractor shall:
 - i) Submit to the Contracting Officer Representative (COR) and Contracting Officer (CO) an initial draft of their detailed Site-Specific Health and Safety Plan (SS HASP) for concurrence by the GRC Safety and Health Division, and approval by the CO. Until the Corporate Health and Safety Plan is approved, the Contractor may only perform necessary phase-in and other administrative activities. The Corporate Health and Safety Plan shall cover operations, recurring maintenance activities and trouble calls.
 - ii) Deliver the following reports to the COR and CO:
 - a. Contract Award and with Change Management Afterward - Site Specific Health and Safety Plan (SS HASP). Note: The initial draft is expected at contract award, and once approved by the CO the Contractor will update/maintain currency for the approved plan and submit the updated plan to the COR and CO.
 - b. Fall Protection Annual Review for the previous year to be delivered by the last business day in January.
 - c. Safety and Health Management System (SHMS) self-assessment for the previous year to be delivered by the last business day in January.
 - d. Refer to the following paragraphs to identify the minimum requirements/elements for each of the mandatory reports:

Minimum Requirements for Site Specific Health and Safety Plan (SS HASP)

1. The following are requirements for a safety and health policy and program document. The following are the minimum requirements for the SS HASP, however each plan shall be job specific and shall also address any unusual or unique aspects of the project or activity for which it is written. The HASP shall reflect with the employer's corporate safety and health program Signature Sheet. Title, signature, and phone number of the following:
 - a. Plan Preparer
 - b. NASA Representative: Review HASP to verify that scope of work is complete.
NASA Safety and Health Designee: Review document for compliance with OSHA. Review for impacts on adjacent NASA occupants.
 - c. Contractor Information
 - d. Prime Contractor
 - e. Contract or task number
 - f. Project Name
 - g. Accurate project description and location
 - h. Contractor accident experience (provide information such as experience modification rate (EMR), OSHA 300 forms, corporate safety trend analysis)
2. Statement of Safety and Health Policy. Provide a copy of the current corporate/company Safety and Health Policy statement.
 - a. Responsibilities and Lines of Authorities
 - b. Identification and accountability of personnel responsible for safety, at both corporate and project level.
 - c. Subcontractors will need to also provide the following:
 - i. Identification of subcontractors
 - ii. Means for controlling and coordinating subcontractors
 - iii. Safety responsibilities of subcontractors.
 - d. Job or work activity "Halt" policy.
3. Training
 - a. List mandatory training and certificates that are applicable to this project (ex. Confined space, crane operator, respiratory protection, HazWOPER, etc.) and any requirements for periodic retraining/recertification.
 - b. Identify requirement for supervisory and employee safety meetings (who attends, when given, who will conduct, etc.)
4. Safety and Health Inspections. Provide details on the following:
 - a. Who will conduct safety inspections (ex. Project Manager, safety professional, supervisors), inspector's training/qualifications, frequency of inspections, process to record inspections, deficiency tracking system, follow-up procedures, etc.
 - b. Any external inspection/certifications that may be required.
5. Personal Protective Equipment (PPE) use, training.
6. Workflow, procedures, and practices that will be followed.

Note 1. The Corporate Health and Safety Plan shall comply with all GRC health and safety requirements, the requirements of the Occupational Safety Health Administration (OSHA) and all NASA STDs and NPRs. Specifically, the plan shall identify the methods and procedures that will be used to ensure a safe and healthful work environment and the methods the Contractor will use to protect both Contractor employees and GRC employees. The Contractor shall require safety responsibilities in all subcontracts and shall monitor their subcontractors' activities to ensure compliance

with the approved health and safety plan. The Corporate Health and Safety Plan shall include the Contractor's Safety and Health Management System, including annual assessments).

Note 2. The Contractor shall provide site-specific HASPs for specified non-recurring activities where unique hazards are identified and require mitigation and/or control (not covered under the Corporate HASP). All sub-contractor activities shall submit a site-specific HASP and shall receive concurrence prior to start of work. If the contract requires contracting or subcontracting for construction activity, the Construction Safety and Health Plan shall be prepared in accordance with Chapter 17 of the Glenn Safety Manual.

- 2) Fall Protection. NPR 8715.1B NASA Safety and Health Programs requires all contractors wearing fall protection equipment to have a competent person develop the fall prevention plans. A GRC 979 Fall Prevention Plan shall be completed anytime fall protection equipment is being used. The competent person shall have fall protection competent person training from a NASA/industry recognized source. Competent person must be on site (at the Center) during use of active fall protection equipment. Fall protection equipment shall be inspected at the beginning of each eight-hour shift prior to each use and annually by a competent person. Sub-contractors shall submit and obtain concurrence from NASA safety as part of the site-specific HASP process. Qualifications and training requirements for both Competent Person and Qualified Person for Fall Protection are defined in ANSI Z359.1. The Contractor shall complete an annual review of their fall protection program, utilizing the framework in the following paragraph, Annual Review and Audit of GRC Fall Protection. Documentation of this annual review shall be provided to the COR and CO annually (for the previous year to be delivered by the last business day in January).

ANNUAL REVIEW/AUDIT OF GRC FALL PROTECTION PROGRAM		Date of Audit:	
CENTER:		ORGANIZATION:	
Prepared/Audited by:			
<u>Notes: Any items selected with a NO shall be explained in the notes section.</u>			
	Yes	No	N/A
FALL PROTECTION PROGRAM CRITERIA			
1	Does the Center have personnel working at heights, exposed to fall hazards, and using Fall Protection (FP) Equipment (3.18.1)? If YES, fall protection program is required to be established and implemented.		
2	Is the fall protection program written and approved by the Center Director (3.18.3)?		
DUTIES AND RESPONSIBILITIES			
3	Has the Center Director designated, in writing, a Center Fall Protection Program Administrator who is responsible for the development, implementation, and management of the Center's fall protection program (3.18.3(c)).		
4	Do the assigned personnel have the necessary skills, knowledge, training and expertise to manage, administer, and implement the fall protection program (3.18.3 (d)).		
CENTER FALL PROTECTION PROGRAM ADMINISTRATOR			
5	Has a survey been conducted for each fall hazard at existing buildings, facilities or structures and a Fall Hazard Survey Report prepared (3.18.4(B))?		
6	Provide guidance and oversight to ensure that NASA fall protection requirements		

	are included in contracts where contractor employees of the acquisition will be working in situations that require fall protection (3.18.4 (c))			
7	Provide oversight to ensure that NASA fall protection requirements are included in work instructions where individuals will be working in situations that require fall protection (3.18.4 (d)).			
8	Provide oversight to ensure that anyone who is identified as a qualified person (per ANSI/ASSE Z359.0-2007, paragraph 2.109) to serve as a subject matter expert in support of the Center's fall protection program has an engineering degree or access to a person with an engineering degree to identify and to evaluate unique situations and “non-standard equipment” and has been trained by an industry-recognized trainer, NASA-recognized trainer/training center, or NASA-developed training program equivalent to ANSI and OSHA compliant training (3.18.4 (e)).			

- 3) **Safety and Health Management System Elements including an Annual Assessment.** The contractor shall develop a Safety and Health Management System (SHMS) incorporating, at a minimum, the elements identified in the following paragraph. This system shall be included in the Corporate Safety and Health Plan. The Contractor shall also complete an annual review of their SHMS, utilizing the framework in the following paragraph. This report shall be furnished to the COR and CO annually.

Minimum Requirements/Elements for a Safety and Health Management System (SHMS)

Contract Worker Coverage. All contractors and subcontractors, whether at general industry, construction, maritime, or Federal agency sites, must follow worksite safety and health rules and procedures applicable to their activities while at the site.

1. Contractor shall develop and operate an effective SHMS.
2. Contractor shall have in place a documented oversight and management system for their organization contractors that drives improvement in contractor safety and health and ensures contractor employees are provided effective protection. Such a system must:
 - a. Address safety and health considerations during the process of selecting sub-contractors and when contractors are on-site.
 - b. Include provisions for timely identification, correction, and tracking of uncontrolled hazards in work areas
 - c. Develop requirements for employees to follow site safety and health rules
 - d. Include a provision for removing a contractor or a contractor's employees from the worksite for safety or health violations.
3. Injury and Illness Data Requirements.
 - a. Contractors (e.g., contracted maintenance workers) and temporary employees who are supervised by host management are governed by the host's SHMS and are, therefore, included in the host's rates.
 - b. Management is required to maintain TCIR and DART rate data (either for all contractors or for all applicable contractors) for hours worked at the worksite.
 - c. Contractor shall maintain, and report annually to the COR, the contractor TCIR and DART rate data.
4. Training. Managers, supervisors, and non-supervisory employees of the contractor shall be made aware of:
 - a. Hazards they may encounter while on the worksite.
 - b. How to recognize hazardous conditions and the signs and symptoms of workplace-related illnesses and injuries
 - c. Implemented hazard controls, including safe work procedures.

- d. Emergency procedures
5. Whistleblower Rights and Anti-Retaliation Protections.
6. Safety and Health Expectations, incentive programs and compliance. A brief description of the company's safety incentive program.
7. Policies and procedures regarding noncompliance with safety requirements.
8. Accident Reporting. The contractor shall identify who, how and when the following will be completed:
 - a. Exposure data
 - b. Accident investigations, reports, and logs
 - c. Immediate notification of major accidents
9. Plans, Programs and Procedures
 - a. Emergency Response Plans
 - i. Procedures and posting of emergency phone numbers
 - b. Spill plans
 - c. Hazard Communication Program. Provide location of MSDS, records of employee training and inventory of hazardous materials (including approximate quantities and a site map) that will be brought onto Government property by Contractor and subcontractors.
 - d. Job Hazard Analysis (JHA) Program: Describe how JHAs will be prioritized, conducted, reviewed, and managed.
10. Personal Protective Equipment (PPE).
 - a. The Contractor shall provide PPE for all personnel assigned to this contract.
 - b. The Contractor shall provide employees PPE-specific training (OSHA).
 - c. PPE shall include disposable protective clothing, respiratory protection, hearing protection, eye protection, head protection, face protection, hand protection, high visibility clothing, and electrical safety clothing.
 - d. Costs for PPE and the associated training for the use of PPE shall be included under the fixed-price portion of this contract.
 - e. All PPE purchases shall be reviewed by the contract Safety and Health Professional to determine proper specifications and adequacy of abatement as per NPR 8715.1B NASA Safety and Health Programs.
11. Training.
 - a. The Contractor shall ensure that all employees receive required training that meets regulatory requirements.
 - b. All Contractor employees and subcontractors shall be trained to recognize and correct unsafe conditions and to control or eliminate hazards. Refresher training shall be provided as required by regulatory requirements.
12. Safety Reporting.
 - a. The Contractor shall report all accidents, including near misses, to the COR using the NASA Mishap Information System (NMIS) and shall initiate an investigation within twenty-four (24) hours in accordance with the Glenn Safety Manual, Chapter 21, Mishap and Close Call Reporting, Investigating, and Recordkeeping. The entry shall be updated with a description of the findings from the investigation upon conclusion. The Contractor shall provide an annual OSHA 300A log (not including names or personal identification information).
13. Certifications.
 - a. Records shall be maintained for all employees requiring certifications as per NPR

8715.1B NASA Safety and Health Programs shall, include pass/fail record of medical clearances as required by NPR 1800.1 (NASA Occupational Health Program Procedures).

- b. Records shall be maintained using specified NASA provided certification tracking system, Q CARD.

14. An annual Self-Evaluation of the SHMS shall:

- a. Annually evaluate the organization's safety and health efforts. This evaluation will judge success in meeting goals and objectives and will help those responsible to determine and implement changes for continually improving worker safety and health protection. The annual self-evaluation is not a compliance audit. It is a critical review to assess the effectiveness of all Safety and Health Management System elements and their sub-elements, and to analyze participant and contractor injury and illness data and trends. It should include a review of written programs, a walk-through of the workplace, and interviews with employees. The report shall be delivered to the COR and CO for the previous year by the last business day in January,
- b. NOTE: An annual evaluation that is merely an inspection of the workplace(s) with a brief report pointing out hazards or a general statement of the sufficiency of the system is inadequate for purposes of meeting this contract requirement and maintaining an effective Safety and Health Management System.
- c. The self-evaluation shall provide a written narrative report with recommendations for timely improvements, assignment of responsibility for those improvements, and documentation of timely follow-up action or the reason no action was taken.
- d. The evaluation must assess the effectiveness of all elements of the contractor's SHMS and HASPs and shall be conducted by competent site, corporate, other persons, or groups of persons who are trained and/or experienced in performing such evaluations. The annual self-evaluation may be conducted by a contractor's employees along with managers, qualified corporate staff, or outside sources who are trained in conducting such evaluations.
- e. Procedures for the self-evaluation involve selection and review of well-defined leading and lagging indicators. Using metrics and performance measures as indicators to help measure progress toward goals and objectives; effectiveness of hazard controls and overall effectiveness of the SHMS and HASPs must be in place. The description of the indicators shall address the:
 - i. Rationale behind selection of the indicator.
 - ii. Method, frequency, and responsibility for monitoring or measuring each indicator.
 - iv. Methods used to keep records of the indicator
 - v. Periodic review of indicator suitability (NOTE: indicators must be chosen carefully to effectively measure tangible results and prevent unintended consequences).
 - vi. Analysis, interpretation, and communication of results.
- a. Self-evaluation results shall:
 - i. Identify deficiencies in the system that may have contributed to uncontrolled hazards or that limit the effectiveness of the SHMS.
 - ii. Assign responsibility and providing resources for correcting hazards and tracking corrective actions.
 - iii. Assign responsibility and providing resources for addressing system deficiencies and achieving goals and objectives

- iv. Establish new or revised system goals and objectives for the next year to correct identified deficiencies and improve SHMS.
15. A copy of each annual evaluation report shall be provided to the COR and CO for the previous year to be delivered by the last business day in January. Corrective actions or self-evaluation requirements shall be reviewed and tracked and shared upon request by the government.

2.1 Base Effort

The Base Effort is defined as ongoing technical effort in support of GRC specified in Sections 3.1, 3.2, 3.3, and 3.4 of this ESHMA Statement of Work (SOW). Due to the high visibility and criticality of institutional risk management and institutional audit support, those functions may become a separate CLIN under the Base Effort.

2.2 Indefinite Delivery Indefinite Quantity (IDIQ)

IDIQ tasks are those in support of, or funded by non-GRC organizations, such as other NASA Centers, NASA Headquarters, or other Federal Agencies.

The primary purpose of requesting and issuing an IDIQ task is to obtain ESHMA support for a complete work-package with an all-inclusive Performance Work Statement (PWS), estimated level-of-effort, specific non-GRC funding/accounting information, and a defined Period of Performance that fits within the ESHMA overall Period of Performance.

An IDIQ PWS may include any or all paragraphs included in this ESHMA SOW. Once an IDIQ task is approved by the CO, and properly funded, all technical and financial reporting for that IDIQ task will become part of the routine contract reporting processes.

For the ESHMA contract, Section 3.5 (NASA HQ Safety and Health) of this overall SOW, is considered to be the PWS portion of that IDIQ task, which will be further definitized either during the contract Phase-in period, or very soon after Contract Start Date.

3. Scope Specific Requirements

3.1 Environmental

- a. The Environmental Management Office (EMO), in the Facilities and Test Directorate, provides overall coordination and integration of the Glenn Research Center's (GRC's) environmental efforts. The office is responsible for ensuring compliance with environmental federal, state, local government and Agency regulations, mandates, and policies. The EMO ensures compliance with regulators at Lewis Field (LF) in Cuyahoga County, Ohio and the Neil A Armstrong Test Facility (GRC-ATF) formerly Plum Brook Station in Erie County, Ohio. The EMO supports agency environmental compliance and engages in agency environmental Communities of Practice (CoP). This work requires the efforts of both NASA civil servants and various support service contractors. The contract includes support for all aspects of environmental management and regulated waste disposal. The focus of this contract is to be able to provide these services as requested by EMO in an efficient and cost-effective manner. In each of the roles described below, the contractor shall serve as a technical representative on behalf of the Government or as an independent third party providing the specified services.
- b. Base work tasks will be assigned as required to support the EMO. Not all tasks will be requested at all times.

- c. The Contractor shall support the development, implementation, efficiency, and improvement of the environmental compliance tasks while maintaining up to date with regulatory requirements. The Contractor performing the assigned tasks shall have the experience, education, training, licenses, and certifications necessary to complete the work. The environmental compliance tasks provide policy, oversight, and coordination for institutional and programmatic environmental issues. These tasks encompass a wide range of activities including but not limited to: environmental sampling and analysis, environmental labeling, environmental program development, education, training, implementation, environmental regulation updates, guidance development, permitting, environmental audits, regulatory inspections, coordinating with regulatory agencies, identifying and mitigating environmental consequences, minimize life-cycle costs, supporting a variety of outreach activities at GRC and agency-wide, collecting and maintaining data for NASA, providing data interpretations, preparing reports, drafting correspondence, presenting data as necessary to customers including but not limited to GRC management, NASA HQ, other NASA Centers, regulatory agencies and other federal agencies. The Contractor shall provide support to all audits, compliance inspections, and environmental investigations.
- d. The work shall be conducted in a manner that complies with all applicable environmental, health, and safety laws and regulations. Likewise, the work shall be conducted in a manner that complies with all NASA GRC environmental, health, and safety requirements. This includes maintaining Health and Safety Plans (HASPs), Job Hazard Analysis (JHA), and other required safety plans to complete the outlined tasks.

3.1.1 Environmental Management System (EMS) Support

- a. The Contractor shall provide support to the Agency and Center EMS Program and to the Agency and Center EMS Representatives. Support includes implementing, updating and conformance with NPR 8553.1C, GLPR 8553.1F and GLWI-FE-8550.1A.
- b. The Contractor shall provide input on annual organizational EMS Risk Matrix assessment including meeting with each organization's EMS Point of Contact (POC).
- c. The Contractor shall assemble and distribute GRC Consolidated Risk Matrix.
- d. The Contractor shall prepare draft EMS Objectives and Targets based on feedback from Consolidated Risk Matrix Review.
- e. The Contractor shall prepare proposed EMS Objectives and Targets based on feedback from draft EMS Objectives and Targets Review.
- f. The Contractor shall support developing and/or updating the annual GRC EMS awareness training, tracking the Center's completion rate for taking the training, and addressing questions raised by GRC personnel.
- g. The Contractor shall prepare draft EMS Management Review presentations for Mission Support Council (MSC) meetings quarterly and Center Director annually or as requested.
- h. The Contractor shall send out quarterly data calls for progress on EMS Objectives and Targets after each quarter of the fiscal year.
- i. The Contractor shall develop draft reports for annual EMS reporting to NASA HQ and electronics stewardship as directed by the Federal Electronics Challenge (FEC).
- j. The Contractor shall participate in EMS audits – internal audits, external audits, third party audits, functional reviews, and internal compliance evaluations.
- k. Contractor to conduct formal surveillance and inspections. Upon request, the Contractor shall enter audit/inspection findings into a corrective action system (e.g., SHEtrak, CAPA). Contractor to provide support in monitoring corrective action implementation and closure.
- l. The Contractor shall provide support for EMS communications through participation in

- various Center activities conducted by EMO.
- m. The Contractor shall support developing and maintaining an EMS Action Log.
- n. The Contractor shall support and implement outreach for environmental topics related to EMS.
- o. The Contractor shall conduct the annual review of tenants and related agreements for inclusion or exclusion from the EMS Program.
- p. The Contractor shall track the completion of annual Environmental Programs Manual Chapter reviews.

3.1.2 Emergency Planning and Community Right to Know Act (EPCRA) Support

- a. The Contractor shall collect data from Center Organizations for EPCRA Section 312 Tier1/Tier 2 Reports.
- b. The Contractor shall collect data from Center Organizations for EPCRA Section 313 Toxic Release Inventory (TRI) Reports.
- c. The Contractor shall provide Superfund Amendments and Reauthorization Act (SARA) Title III reports that are submitted by March 1 each year for both LF and GRC-ATF.
- d. The Contractor shall provide Facility Annual Chemical Inventory (SARA 312) as Tier2Submit reports with corresponding Adobe Acrobat files for:
 - i. Ohio EPA State Emergency Response Commission (SERC)
 - ii. Cuyahoga County Local Emergency Planning Committee (LEPC) and Erie County LEPC
 - iii. Local fire departments (Brook Park FD and Perkins Township FD)
- e. The Contractor shall provide the U.S. EPA Toxic Chemical Release Inventory Reporting Form R or Negative Declaration due July 1 each year to Ohio EPA and if required U.S. EPA.
- f. The Contractor shall participate/coordinate/facilitate regulatory agency inspections and internal reviews, and the Energy and Environmental Functional Review (EEFR).
- g. Contractor to conduct formal surveillance and inspections. Upon request, the Contractor shall enter audit/inspection findings into a corrective action system (e.g., SHEtrak, CAPA). Contractor to provide support in monitoring corrective action implementation and closure.

3.1.3 Air Pollution Control and Stratospheric Ozone Protection

- a. The Contractor's tasks include but are not limited to:
 - i. Air compliance program support
 - ii. Manage/maintain air compliance records
 - iii. Participate in agency community of practice forum/working group participation
 - iv. Collect compliance/permits data from sources
 - v. Enter/maintain air compliance data into eBusiness
 - vi. General air quality awareness training for center personnel
 - vii. Operator training on permit/compliance requirements
 - viii. Compliance assistance
- b. The Contractor shall participate/coordinate/facilitate regulatory agency inspections and internal reviews, and the EEFR.
- c. The Contractor shall provide monthly Hazardous Air Pollutants (HAP) Chemical Purchase/Chemical inventory data.
- d. The Contractor shall provide annual Ozone-Depleting Substances (ODS) Chemical Purchase/Chemical inventory data. Including the support for the Ozone Depleting and Global Warming Substances (ODGWS) NETS data call.
- e. The Contractor shall provide data pulls from the Chemical Inventory as requested.
- f. The Contractor shall follow reporting and recordkeeping requirements according to Ohio

EPA Asbestos Abatement & Demolition regulations. For applicable projects, support compliance with activities such as; compliance oversight, project notifications, annual reporting, field monitoring.

- g. For applicable project, support compliance with National Emission Standards for Hazardous Air Pollutants (NESHAP) and New Source Performance Standards (NSPS).
- h. The Contractor shall support emissions modeling, source testing, and major source permitting as required.
- i. The Contractor shall support the review and update of Center policies and plans including program requirements associated with the Environmental Programs Manual - Chapter 4, on an as needed basis.
- j. Contractor to conduct formal surveillance and inspections. Upon request, the Contractor shall enter audit/inspection findings into a corrective action system (e.g., SHEtrak, CAPA). Contractor to provide support in monitoring corrective action implementation and closure.

3.1.4 Implementation of Small-Scale Environmental Sampling

- a. The Contractor shall support, as requested, small-scale sampling efforts for environmental investigations.

3.1.5 National Environmental Policy Act (NEPA) Support

- a. The Contractor shall support the GRC NEPA Manager in project reviews, assisting in determination of level of NEPA analysis. This includes reviewing Subject Matter Expert comments and pre-existing documents and analysis (e.g., noise surveys, Environmental Resource Document, Environmental Checklists).
- b. The Contractor shall assist the GRC NEPA Manager in records management.
- c. Upon request, the Contractor shall participate meetings with project stakeholders (e.g., CoF, Facilities, etc.).
- d. The Contractor shall support EMO in reviews of GRC's Environmental Checklists (C150) and safety permits. Reviews will be delegated based on subject matter expertise (e.g., stormwater expert reviews for stormwater impacts).
- e. The Contractor shall assist the GRC NEPA Manager in providing NEPA training to project and program managers along with EMO. This includes assisting the GRC NEPA Manager in addressing NEPA policy and procedure questions.
- f. The Contractor shall utilize the NASA Electronic Tracking System (NETS) to record NEPA analyses as directed by the GRC NEPA Manager.
- g. The Contractor shall support the National Environmental Policy Act (NEPA) Manager in the review of NEPA studies, surveys, and assessments and perform other NEPA tasks such as: environmental impact statements, environmental assessment, endangered species and/or wetlands analysis, watershed analyses, natural resource, cultural resource, economic, technical and/or risk analyses, NEPA and environmental planning related documentation including, but not limited to, preparation or review of NEPA and other environmental planning documents, and related programs as described in GEPM.
- h. The Contractor shall act as alternative representative when the GRC NEPA Manager is unable to attend NASA NEPA Network Community of Practice or Working Group meetings.
- i. The Contractor shall support the review and update of Center policies and plans including program requirements associated with the Environmental Programs Manual - Chapter 2, on an as needed basis. This could include, but is not limited to, recommendations for Center NEPA requirements documents, forms, environmental checklists, guides, policies, instructions, procedures, manuals, and Standard Operating Procedures (SOPs).
- j. Upon request, the Contractor shall provide support during internal audits, EEFs, and other

- NEPA program related audits.
- k. Contractor to conduct formal surveillance and inspections. Upon request, the Contractor shall enter audit/inspection findings into a corrective action system (e.g., SHEtrak, CAPA). Contractor to provide support in monitoring corrective action implementation and closure.
 - l. The Contractor shall support the development, review, and/or update of the Environmental Resource Document, Environmental Justice Plan, Environmental Assessment, Environmental Impact Statement, Environmental, Baseline Surveys, etc.

3.1.6 Natural Resource Management Support

- a. The Contractor shall support the Natural Resource Manager in the development of the annual Species Management Plan (SMP) goals and metrics.
- b. The Contractor shall review and report status of species management activities that are approved by the annual SMP and EMS objectives.
- c. The Contractor shall perform specialized tasks in support of the SMP.
- d. The Contractor shall provide input related to projects and ongoing maintenance activities when such work may impact natural resources. Additionally, provide general information to project teams when requested.
- e. The Contractor shall provide mapping in support of natural resources management tasks – both sites.
- f. The Contractor shall provide educational outreach support and represent supported program areas during EMO outreach events and external requests with EMO approval.
- g. The Contractor shall assist the Natural Resource Manager in awareness training and site tours in support of the Natural Resource Program, as approved by EMO.
- h. The Contractor shall assist the Natural Resource Manager in project reviews for natural resource impacts. Includes assistance in referencing readily available maps and regulations to determine permitting and/or consultation needs.
- i. The Contractor shall assist the Natural Resource Manager in the preparing of permit applications and/or consultation packages. This could include supporting stream assessments, wetland delineations, species surveys, Biological Assessments, etc. when applicable. Possible platforms the Contractor may access include; eBusiness, iPaC, ePermit, NWI, 401 Water Quality Certification for the Nationwide Permits Stream Eligibility Web Map, etc.
- j. The Contractor shall act as alternative representative when the Natural Resource Manager is unable to attend Natural Resource Council (NRC) or Working Group meetings.
- k. The Contractor shall assist the Natural Resource Manager in site walks identifying possible impacts to natural resources (e.g.; bird nests, trees, wetlands).
- l. The Contractor shall assist the Natural Resource Manager in records management.
- m. The Contractor shall support the review and update of Center policies and plans including program requirements associated with the Environmental Programs Manual - Chapter 25, on an as needed basis. This could include, but is not limited to, recommendations for Center natural resource requirements documents, forms, guides, policies, instructions, procedures, manuals, and Standard Operating Procedures (SOPs).
- n. Upon request, the Contractor shall provide support during internal audits, EEFRs, and other NEPA program related audits.
- o. Contractor to conduct formal surveillance and inspections. Upon request, the Contractor shall enter audit/inspection findings into a corrective action system (e.g., SHEtrak, CAPA). Contractor to provide support in monitoring corrective action implementation and closure.

3.1.7 Stormwater and Wastewater Support

- a. The Contractor shall provide support for the LF Municipal Separate Storm Sewer System

(MS4) program to include:

- i. Evaluate the Stormwater Management Plan (SWMP) annually and provide suggestions for revision
 - ii. Draft and perform activities associated with annual MS4 objectives
 - iii. Evaluate and provide recommendations for updates to SATERN and in-person training modules annually
 - iv. Prepare draft MS4 annual report for review by NASA
- b. The Contractor shall provide support for facility Stormwater Pollution Prevention Plans (SWP3s). Evaluate SWP3 annually and provide suggestions for improvement. In addition, conduct training for specified personnel and perform quarterly and annual facility inspections and document results.
 - c. The Contractor shall provide support on construction/demo projects requiring an Ohio Construction Storm Water general permit (CGP). Conduct review of SWP3, perform site inspections and document in SHEtrak system, and conduct pre-construction meetings for projects requiring Ohio CGP.
 - d. The Contractor shall perform outfall screening, sampling, and analysis per permit requirements. Additionally, escort contract laboratory personnel to sites, collect flow data, and enter analytical results into monthly electronic discharge monitoring reports (e-dmr) for review and approval by NASA.
 - e. In response to noncompliant discharges, the Contractor shall provide source-tracing assistance using dye testing, analytical testing, etc., to the Illicit Discharge Detection (IDDE) Team.
 - f. The Contractor shall provide required documentation and technical expertise during Northeast Ohio Regional Sewer District (NEORS D) and Ohio EPA site visits/audits as well as any other environmental audits (EEFR, EMS, etc.). Additional support may include collecting and analyzing split samples during NEORS D inspection.
 - g. The Contractor shall coordinate with contract lab for any additional analysis or sampling needed.
 - h. The Contractor shall provide data summary charts for low-level mercury to program lead and contractor staff working on the mercury minimization project at outfall 001 at LF.
 - i. The Contractor shall provide equipment maintenance/repair/calibration. Example of equipment can include but is not limited to; pH/conductivity meter or flow meter.
 - j. The Contractor shall conduct weekly and monthly sampling and analysis of Outfall 001 according to latest NPDES permit.
 - k. The Contractor shall conduct quarterly outfall 001 flow meter maintenance for the duration of this contract
 - l. The Contractor shall draft the annual Pollutant Minimization Program (PMP) reports for review.
 - m. Contractor to conduct formal surveillance and inspections. Upon request, the Contractor shall enter audit/inspection findings into a corrective action system (e.g., SHEtrak, CAPA). Contractor to provide support in monitoring corrective action implementation and closure.
 - n. The Contractor shall review and update Center policies and plans including program requirements associated with the Environmental Programs Manual - Chapter 24

3.1.8 Environmental Spill, Mishap, and Incident Response

- a. In accordance with the Glenn Research Emergency Management Plan, Center Emergency Management Plan (EMP), and Integrated Contingency Plan (ICP), Resource Conservation and Recovery Act (RCRA) Contingency Plans, Spill Prevention Control and Countermeasure Plans, the Center Incident Commander (IC) coordinates all emergency response measures and manages emergency response actions. After the emergency phase of an incident the Contracting

Officer Representative (COR), Technical Representative (TR) or EMO Emergency Response Team (ERT) can give direction for required post emergency environmental management and waste cleanup.

- b. A spill is an unplanned event. Therefore, communication and coordination are required to determine and execute the proper level of effort for each response. The Contractor will support and assist with small manageable spills and arrange and provide additional offsite contract support during an emergency. Post emergency, the Contractor will provide spill control, waste cleanup, disposal, and cost summary.
 - i. The contractor shall provide qualified staff to assist the Office of Protective Services and the GRC Incident Command in the event of any environmental spill, mishap or incident.
 - ii. The Contractor shall be on call 24/7 to support emergency response at LF and the GRC-ATF.
 - iii. When requested, the Contractor shall provide an incident report to NASA detailing their observations of the incident and the Contractor's support provided.
 - iv. When requested, the Contractor shall review and provide updated on the environmental sections of the EMP.
 - v. The Contractor shall respond actions to active environmental emergencies and spills upon the request of the Center's IC, Notify 911 test distributions, or from EMO direction. The response should be as quickly as practical of receiving the request and comply with Ohio EPA, USEPA, and Department of Transportation (DOT) requirements. Subcontractors may respond to incidences such as those requiring Levels A and B Personal Protective Equipment (PPE).
 - vi. The Contractor shall respond to post emergency spills upon the request of the Notify 911 text distributions, the EMO ERT text distribution, or discrete requests from GRC employees not contacting GRC Dispatch. If conditions threaten to become an emergency the response should be as quickly as practical of receiving the request. If conditions are not impending an emergency the response can be as soon as is practicable or next business day if outside of normal work hours. The EMO ERT on call will confirm if an emergency is impending.
 - vii. A responsible party may choose to self-contain and clean a non-emergency spill. If so, the contractor shall support a self-clean up but the level of effort will vary based on the incident and the responsible parties' ability to contain and clean. The EMO Emergency Response Team has the ability to override a responsible party's request for support such as calling Hazardous Materials Management (HAZMAT).
 - viii. The Contractor shall support environmental audits, regulatory inspections, development and reviews of lessons learned, along with other emergency response related audits and audit types.
 - ix. The Contractor shall support non-emergency work orders for cleaning up and/or proper disposal of spills. After receiving a complete work order (C-709) Waste Management will provide an estimate to the responsible organization and EMO so that a proposal request (PR) for reimbursement may be generated. Copies will be provided to the Project Manager and/or TR.
 - x. The Contractor shall submit weekly reports regarding task support.
 - xi. The Contractor shall maintain basic emergency response supplies and equipment.
 - xii. Contractor to conduct formal surveillance and inspections. Upon request, the Contractor shall enter audit/inspection findings into a corrective action system (e.g., SHEtrak, CAPA). Contractor to provide support in monitoring corrective action implementation and closure.

3.1.9 Above Ground Storage Tank (AST) Support

- a. The Contractor shall provide annual inspections of all AST, oil-filled equipment (OFE), and drum locations (55+ gallons) at LF and GRC-ATF and issue SHEtrak findings for non-compliances observed.
- b. The Contractor shall maintain an updated inventory of all ASTs, OFE, drums (55+ gallons), including POC info (e.g., owner, phone number), fuel contents, etc.
- c. The Contractor shall ensure that tanks noted above are properly labeled (ID numbers, content).
- d. The Contractor shall empty water from a secondary containment of outdoor ASTs when an oil sheen or major fuel/oil release has occurred.
- e. Upon request, the Contractor shall provide training for garage and fuel delivery personnel on spill prevention, control, and countermeasures (SPCC) & good housekeeping procedures.
- f. Upon request, the Contractor shall evaluate and provide recommendations for updates to SATERN and in-person training modules annually.
- g. Upon request, the Contractor shall provide general information to POCs regarding spill kits, labeling requirements, secondary containment requirements, inspection frequency, etc.
- h. The Contractor shall assist in scheduling and documenting annual tank level gauge and alarm testing.
- i. The Contractor shall provide required documentation and technical expertise during regulatory site visits/audits as well as any other environmental audits (EEFR, EMS, etc.).
- j. Upon request, the Contractor shall provide annual support reviewing and providing NASA updates to GRC Environmental policies and plans (e.g., Environmental Programs Manual chapters, SPCC plans, RCRA Plans, etc.).
- k. Contractor to conduct formal surveillance and inspections. Upon request, the Contractor shall enter audit/inspection findings into a corrective action system (e.g., SHEtrak, CPAR). Contractor to provide support in monitoring corrective action implementation and closure.
- l. The Contractor shall be responsible for implementing and maintaining the SPCC Plan.

3.1.10 Underground Storage Tank (UST) Support

- a. The Contractor shall support the UST Program Lead with monthly inspections.
- b. The Contractor shall support investigations of potential drips or spills discovered during inspections. Additionally provide contract support for third-party inspectors.
- c. The Contractor shall support the annual third-party inspections of USTs at LF.
- d. The Contractor shall support maintaining an updated inventory of all USTs, including POC info, fuel contents, etc.
- e. The Contractor shall provide training for garage and fuel delivery personnel on SPCC & good housekeeping procedures.
- f. The Contractor shall support providing general information to POCs when requested on spill kits, labeling requirements, secondary containment requirements, inspection frequency, etc.
- g. The Contractor shall support providing required documentation and technical expertise during regulatory site visits/audits as well as any other environmental audits (EEFR, EMS, etc.).
- h. The Contractor shall assist in uploading electronic files to the UST folder.
- i. Upon request, the Contractor shall support the review and update of Center policies and plans including program requirements associated with the Environmental Programs Manual - Chapter 17.
- j. Contractor to conduct formal surveillance and inspections. Upon request, the Contractor shall enter audit/inspection findings into a corrective action system (e.g., SHEtrak, CAPA). Contractor to provide support in monitoring corrective action implementation and closure.

3.1.11 Sustainability Support

- a. The Contractor shall provide program specific research as required. This may include research to develop presentation and training slides.
- b. The Contractor shall provide support for the update of the Sustainability 10-year Master Plan.
- c. The Contractor shall provide support for the annual Recycling & Sustainable Acquisition (RSA) NETS data call.
- d. The Contractor shall participate in weekly, monthly, quarterly, and annual Sustainability Program related meetings, presentations, etc.
- e. The Contractor shall participate in Center Sustainability Team and Working Group meetings/telecons/ViTS. This may include support leading/facilitating the Sustainability Working Group upon request.
- f. The Contractor shall support outreach activities (at a minimum monthly from April to November) and represent supported program areas during EMO outreach events.
- g. Upon request, the Contractor shall provide annual support reviewing and providing NASA updates to GRC Environmental policies and plans associated with the Environmental Programs Manual - Chapter 22.
- h. Contractor to conduct formal surveillance and inspections. Upon request, the Contractor shall enter audit/inspection findings into a corrective action system (e.g., SHEtrak, CAPA). Contractor to provide support in monitoring corrective action implementation and closure.

3.1.12 Waste Management Support

- a. The Contractor shall be responsible for solid waste characterization. This includes the proper characterization and tracking of all offsite shipments of: solid wastes; hazardous wastes, soils to be used for commercial and/or industrial fill, construction and demolition debris, recyclables. This requires manifest development, review and tracking and storage.
- b. The Contractor shall have the capability to perform hazardous waste analysis including the toxicity characteristic leaching procedure (TCLP) as described in 40 CFR 261, Appendix II, and the following additional test for hazardous waste characteristics: reactivity, corrosiveness, and ignitability. All methods shall be in accordance with United States Environmental Protection Agency (US EPA) Publication SW-846, Methods for Evaluating Solid Waste.
- c. The Contractor shall be responsible for ensuring that all regulated waste (including solid waste, hazardous waste, universal waste, non-hazardous waste, used oils, construction and demolition debris, commercial/industrial soils, recyclable materials, resource conservation and recovery act (RCRA), hazardous, toxic substances control act (TSCA), asbestos containing materials (ACM), polychlorinated biphenyls (PCB's), lead based paint (LBP), medical waste, impacted stormwater and impacted waste water, and excess property is properly and any other GRC waste is disposed in accordance with all laws, regulation and NASA guidance.
- d. The Contractor shall maintain, improve, and implement the waste management programs such as those described in Environmental Programs Manual to ensure that waste generators, including but not limited to medical services, chemical users, project managers, construction managers and COTR's properly dispose of regulated waste.
- e. The Contractor shall provide all necessary data and reports including reporting in the NETS, Ohio EPA eBusiness systems, and any other media as required such as Ohio EPA Annual/Biannual Generators Report, Annual PCB Logs, material disposed, reused, and recycled, recycling funds generated, Notification of Regulated Waste Activity, EPA 8700-12.
- f. The Contractor shall provide the program for the collection, identification, segregation, packaging and offsite shipment of RCRA regulated waste to regulatory compliant treatment

- storage and disposal facilities (TSDF's).
- g. The Contractor shall perform destination facility audits
 - h. The Contractor shall provide the program for the identification and training of RCRA waste generators and managers and conducts field reviews to assure regulatory compliance.
 - i. The Contractor shall support the program for the management and inspection of RCRA hazardous waste 90-day accumulation areas, satellite accumulation areas, used oil collection areas, recyclable material collection areas and solid waste collection areas.
 - j. The Contractor shall maintain currency in regulatory changes affecting the GRC's waste management programs and update the GRC's programs to reflect changes in regulatory requirements by the date required by the regulations and GRC management.
 - k. The Contractor shall maintain up-to-date knowledge of and assure compliance with all applicable RCRA and DOT regulations.
 - l. The Contractor staff shall be qualified by having and maintaining current RCRA and DOT Training and having a minimum of 2 years of experience to perform RCRA site inspections and to perform RCRA waste management.
 - m. The Contractor shall have and maintain OSHA 29 CFR - Hazardous waste operations and emergency response (HAZWOPER) Training.
 - n. The Contractor shall support the Incident Command System (ICS) for environmental incidences.
 - o. The Contractor shall provide disposal data and records to GRC chemical management and all environmental program areas such as the Air program, Water Program, Sustainability and Pollution Prevention program and EMS.
 - p. The Contractor shall be trained and qualified in the use of cranes and rigging, trained and qualified to access and to work in confined spaces, trained and qualified in use of fall protection.
 - q. The Contractor shall perform an annual review of the GRC's waste management programs, update the Environmental Programs Manual chapters, and recommend opportunities for improvement and opportunities to better integrate with the other environmental media and the operation of the GRC.
 - r. The Contractor shall be responsible for assisting in the development of emergency response plans and hazardous materials spills, implementing and maintaining the RCRA Contingency Plan (both stand alone or combined with the SPCC Plan), the waste management procedural manual, auditing treatment storage and disposal (TSD) facilities that handle GRC wastes and assisting in investigations of mishandled wastes. The Contractor shall be responsible for investigating, setting up, inspecting, documenting, new RCRA waste storage sites and for the closure of RCRA underused waste accumulation sites. The Contractor will provide PE signatures if required for RCRA closures.
 - s. The Contractor shall be responsible for maintain regulatory compliance, collecting waste from various temporary storage sites, inspecting the wastes, inspecting the storage sites, consolidating the waste for shipment, arranging for transport and disposal, coordinating construction-related waste with other NASA and construction contractor organizations at GRC, and maintaining records as required by RCRA regulations and in accordance with the Environmental Programs Manual.
 - t. The Contractor shall be responsible for ensuring that all waste characterizations, uniform hazardous waste manifests, solid waste manifests, contractor property passes, land bans, hazardous waste profiles, and supporting analytical data, all waste shipping papers and all bills of lading are accurate, correct, and complete.
 - u. The Contractor shall provide signatures for waste characterizations, uniform hazardous waste manifests, solid waste manifests, contractor property passes, land ban forms, hazardous waste profiles, all waste shipping papers, all bills of lading and all supporting analytical data.
 - v. The Contractor shall ensure programmatic and regulatory compliance with all aspects of all

shipping papers for the Government including the waste manifests and other necessary documents including tracking, reporting open manifests, tracking closure, regulatory required storage of the documents and long-term document storage and retrieval of the documents. All documents are the property of GRC.

- w. The Contractor shall ensure that all labels and placards are present and correct.
- x. The Contractor shall oversee the hazardous waste minimization program and must provide consulting on a variety of solid and hazardous waste disposal questions. This may include but not be limited to consulting with Facilities Division, researchers, EMO staff and management, attending construction meetings, reviewing Statements of Work (SOW), Health and Safety Plans (HASP), Job Hazard Analysis, 8095 forms and NEPA C-150 forms for possible environmental concerns.
- y. The Contractor shall work in accordance with the NASA Environmental Management System (EMS)
- z. The Contractor shall manage the program related data and provide data to all environmental program areas. The Contractor shall interface with and support all environmental program areas by providing this data.
- aa. The Contractor shall provide training to waste generators and additional personnel as needed, update and customized training materials, assist with emergency response activities, and coordinate remedial support for emergency response and incidences requiring off site assistance.
- bb. The Contractor shall provide engineering services, technical consultation and engineering evaluations to support environmental investigations and remedial actions. The Contractor shall prepare soil sampling plans for investigation of sites possibly contaminated by hazardous materials or past disposal of hazardous wastes, coordination of such sampling, analysis of data collected, and preparation of data for presentation to regulatory agencies. The Contractor shall collate the data gathered in such assessments in a computerized spreadsheet and shall ensure proper quality assurance/quality control procedures are followed in data collection. Where the Contractor conducts such assessments, the task performed shall be covered by a site-specific health and safety plan. All soils handled and/or disposed of shall be in accordance with Environmental Programs Manual.
- cc. The Contractor shall provide container management for, hazardous materials, hazardous wastes, solid wastes, construction and demolition debris, soil spoils from drilling, and recyclable materials.
- dd. The Contractor shall ensure that all funds earned through recycling efforts are managed through the Contract.
- ee. The Contractor shall perform additional tasks including but not limited to the following: cleaning manholes, and sewers, cleaning oil water separators, cleaning building sumps, remediate wood block floors, equipment decontamination, site characterization (e.g., asbestos containing material, lead-based paint, mercury, and polychlorinated biphenyl), site preparation/sweep for remediation (e.g., building sweep for chemicals, ozone depleting material, bulbs, ballasts, and oil containing devices.), coordination of utility isolation or utility abandonment and facility reclamation (e.g., test cell cleanout, hazardous material abatement, excess equipment and animal waste decontamination)
- ff. The Contractor shall be on call 24/7 for emergency response at LF and ATF Station. The Contractor shall provide emergency support as needed to the Security Office, First Responders the Emergency Operations Center (EOC), and Emergency Response Team (ERT) for incident response, including response, cleanup, and remediation where necessary.
- gg. The Contractor shall support the Facilities Division (FD) with Institutional Construction Projects in complying with all environmental requirements including but not limited to providing environmental sampling, remediation, and recycling support.
- hh. Contractor to conduct formal surveillance and inspections. Upon request, the Contractor shall

enter audit/inspection findings into a corrective action system (e.g., SHEtrak, CAPA).
Contractor to provide support in monitoring corrective action implementation and closure.

3.1.13 Cultural Resources Management (CRM) Support

- a. The Contractor shall provide support upon request for the CRM program at GRC which shall include but not limited to the writing of Section 106 consultation, Memorandum of Agreement (MOA), working on the GRC Integrated Cultural Resource Management Plan (ICRMP), Programmatic Agreements, program data calls; NETS, and enteral/external audits.
- b. The Contractor shall provide support to the Program Manager on National Historic Preservation Agency (NHPA) and provide support in communications with relevant GRC stakeholders.

3.1.14 Training

- a. The Contractor shall coordinate training for on-site Base Services Contractor employees with the Government for review and approval. Ad Hoc or as-needed training shall be coordinated with the CO and COR as identified. The Contractor shall keep current with all program specific required training.

3.1.15 Electronic Databases

- a. The Contractor shall be required to collect, compile, manage, and share data with Government staff in a variety of databases including but not limited to; NETS, CAPA, SHEtrak, Chemical Management System, safety permit website, shared access network drives, SharePoint, Microsoft Teams, Mural, Maximo Asset Management, US EPA Tier2Submit, GRC Forms, and Ohio EPA eBusiness software applications.
- b. The Contractor is required to utilize the provided Maximo software to track status and manage tasks. An example is utilizing Maximo for purposes of work control and work order management (scheduling, work order tracking, logging of field observations, and close-out) and for executing JHAs.

The GRC will provide controlled access to required databases and local training to the Contractor's personnel at no additional cost to the Contractor. provide a monthly report to the COR that includes the following information:

3.1.16 Applicable NASA Policy Documents – For Reference Only

Applicable NASA Policy Documents	
Document	Description
GLPR 8553.1F	This document presents the Glenn Research Center (GRC) Environmental Management System. See attached.
GLWI-FE-8550.1A	This document describes the process for staffing, organizing, conducting, and responding to internal environmental compliance evaluations. See attached.
GRC Form 150	This checklist assists in ensuring new programs and actions conducted and/or funded by GRC attain and maintain compliance with applicable Federal, state and local environmental laws and regulations. See attached.

GRC Construction Contractor Manual	Guidance and reference manual for the execution of construction at NASA Glenn Research Center. A broad outline of required processes, forms, access procedures, and construction contractor expectations. - Web Link Only
	https://www1.grc.nasa.gov/glenn-construction-safety/#grc-material
GRC Excavation Manual	Procedural Requirements to ensure safe excavation at NASA GRC - Web Link Only
	https://www1.grc.nasa.gov/wp-content/uploads/PS-01278-Excavation.pdf
NPR 8715.3D	NASA General Safety Program Requirements - Web Link Only
	https://nodis3.gsfc.nasa.gov/displayDir.cfm?t=NPR&c=8715&s=3D
NPR 8553.1C	NASA's Environmental Management System (EMS) - Web Link Only
	https://nodis3.gsfc.nasa.gov/displayDir.cfm?t=NPR&c=8553&s=1C
GLM-FE-8500.1	NASA Glenn Research Center Environmental Programs manual - Web Link only
	https://www1.grc.nasa.gov/wp-content/uploads/EPM-TOC.pdf
GLP-QS-8715.1	NASA Glenn Research Center Safety Manual - Web Link only
	https://www1.grc.nasa.gov/wp-content/uploads/gsm-manual.pdf
NPR 8580.1A	Implementing the National Environmental Policy Act and Executive Order 12114 – Web Link Only
	https://nodis3.gsfc.nasa.gov/displayDir.cfm?t=NPR&c=8580&s=1A

3.2 Aero/Space Systems and Ground Support Equipment Mission Assurance

The Contractor shall provide the necessary management, personnel, equipment, training, and supplies (not otherwise provided by the Government) required to perform services for planning, implementation, and assessment of System Safety Engineering, Reliability and Maintainability Engineering, EEE Parts, S&MA Management Information, Quality Assurance (QA)/Quality Engineering (QE), Software Assurance Software Safety (SASS), Complex Electronics/Flight Programmable Logic Assurance (CE/FPLA), Project Assurance, Risk Management, Independent Assessment, and Documentation and Report Support elements for the GRC S&MA Directorate (SMAD).

3.2.1 General Requirements

- a. The Contractor shall assess compliance with NASA and GRC System Safety, Reliability and Maintainability, EEE Parts, (SASS), CE/FPLA, Risk Management, and QE/QA policies, requirements, standards, and controls listed in the Applicable Documents and Reference Documents Appendices below.
- b. The Contractor shall perform S&MA activities throughout program and project lifecycles evaluating the design, manufacturing, and testing of aero/space hardware and software in accordance with project requirements.
- c. The Contractor shall perform S&MA activities for flight projects in accordance with project requirements and the requirements in Glenn Procedural Requirements, GLPR 7120.5.30, Space Assurance Requirements (SAR).

- d. The Contractor shall ensure that technical performance assessment information is provided in a timely manner to the GRC SMAD to support the decision-making process regarding open problems, hazards, and risks pertaining to accomplishing GRC's mission.
- e. The Contractor shall perform surveillance, audits, and assessments for assigned projects related to systems safety, reliability and maintainability, QA/QE, SASS, CE/FPLA, risk management, and EEE parts.
- f. The general requirements in this section support the SMAD's overall assurance efforts and independent assessment responsibilities. General requirements include:
 - i. The Contractor shall evaluate project activities and plans, including S&MA Plans, for the GRC SMAD.
 - ii. The Contractor shall review project documentation to ensure consistency and adequacy with overall project requirements.
 - iii. The Contractor shall coordinate system safety, reliability and maintainability, QA/QE, SASS, CE/FPLA, risk management, and EEE parts control issues with S&MA, project engineering, and Contractor personnel, and provide guidance, advice, and presentations, as appropriate, to help minimize risk and increase the probability of mission success.
 - iv. The Contractor shall provide the GRC SMAD organization with recommendations for corrective and preventative action in identification of project deficiencies and shall support the GRC's Corrective and Preventive Action (CAPA) System.
 - v. The Contractor shall interact with GRC Program/Project Office and other Contractors, as necessary, to achieve project goals by requested deadlines.
 - vi. The Contractor shall provide coordination and support (including administrative support, preparation of presentations, and other conference materials) for onsite and offsite Technical meetings, and key program/project milestone reviews, as requested.
 - vii. The Contractor shall make recommendations for improvements and innovative techniques that can be utilized to enhance the achievement of the S&MA/program's mission.
 - viii. The Contractor shall generate reports, provide trade studies, design change improvements, and maintain system/component goals/requirements databases in support of preflight assessment reviews and flight readiness milestone reviews.

- ix. The Contractor shall evaluate Problem Reports, determine if the root cause has been identified and if the corrective action has been tested and verified. The Contractor shall provide reports, determine root causes, and recommend corrective action to the projects.
- x. The Contractor shall perform inspection and surveillance activities during manufacturing production, testing, and operations to reduce the overall risk to cost, schedule, and mission success.
- xi. The Contractor shall support the project to prepare inspection/verification matrices, inspection reports, problem reports, and nonconformance reports.
- xii. The Contractor shall support Program/Project milestone reviews (e.g., System Requirements Review, Preliminary Design Review, Critical Design Review, Test Readiness Review, System Acceptance Review). Findings, comments, and recommendations shall be formally documented, such as by Review Item Discrepancy (RID) forms, and then tracked to ensure proper closure.
- xiii. The Contractor shall perform and provide audits on Contractor(s) and vendors to validate processes and controls in order to ensure end-item compliance to requirements.
 - 1. The Contractor shall generate audit/survey checklists, findings, and reports. Follow up on corrective actions to preclude recurrence.
 - 2. The Contractor shall perform follow-up/surveillance activities relative to problem reports, audit findings, and verify corrective action(s) implementation.

3.2.2 System Safety

- a. The Contractor shall perform or review system and subsystem safety analyses according to NPR 8715.3, NASA General Safety Program Requirements, in the following areas, but not limited to:
 - i. Safety Compliance with NASA and project safety standards, procedures, and requirements.
 - ii. Probabilistic Risk Assessments (PRAs).
 - iii. Safety Critical Items Lists (CILs).
 - iv. Safety and Risk Trade Studies.
 - v. Independent Assessments.
 - vi. Program failures, nonconformances, and anomalies.
 - vii. Hazard Analysis.
 - viii. Safety Documentation.
 - ix. Safety Reviews, Panels, and Milestones.
 - x. Changes, Deviations, and Waivers.
 - xi. Program/Project Review Board Support.

- xii. Safety Assessments for nonconformances, discrepancies, and anomalies.
- xiii. Safety Metrics.

- b. The Contractor shall provide data utilizing tools such as Fishbone diagrams, Root Cause Analysis (RCA) Tool, the Lessons Learned Information System (LLIS), CAPA, and NASA Mishap Information System (NMIS).

3.2.2.1 Safety Documentation

- a. The Contractor shall prepare, review, and assess System Safety Plans, System Engineering Management Plans, Safety Data Packages, Hazard Reports, and other safety and program/project documentation/records and logs to ensure compliance with applicable Agency, GRC and Program safety requirements.

3.2.2.2 Mission Support

- a. The Contractor shall provide real-time safety assessments during pre-launch and launch countdowns and missions, as requested.

3.2.3 Reliability and Probabilistic Risk Assessment (PRA)

The Contractor shall make use of established reliability modeling and tools to perform reliability analysis. These may consist of reliability block diagram models constructed and evaluated using EXCEL, or may be simulation tools, such as Rapid Availability Prototyping for Testing Operational Readiness (RAPTOR), Systems Analysis Programs for Hands-On Integrated Reliability Evolutions (SAPHIRE), and Computer Aided Fault Tree Analysis (CAFTA), to evaluate system design. The results of this evaluation, along with recommendations associated with the system design, shall be provided to NASA GRC.

3.2.3.1 Reliability and Maintainability

- a. The Contractor shall provide support to NASA to develop and implement a reliability and maintainability program in accordance with NASA Reliability and Maintainability (R&M) Program Policy, NPD 8720.1 and Space Assurance Requirements, GLPR-7120.5.30.
- b. The Contractor shall perform reliability and maintainability tasks for assigned projects in the following areas, but not limited to:
 - i. Project Documentation.
 - ii. Design Analysis.
 - iii. Issue Resolution.
 - iv. Milestone Reviews.
 - v. Reliability, Availability, or Maintainability (RAM) Prediction.
 - vi. Failure Modes and Effects Analyses (FMEA).

- vii. Failure Modes Effects and Criticality Analysis (FMECA)
- viii. Critical Items Lists (CILs).
- ix. Limited Life Items Plans.
- x. Availability, Maintainability, and Maintenance Concepts.

3.2.3.2 Probabilistic Risk Assessments and Plans

- a. The Contractor shall perform a Probabilistic Risk Assessment (PRA) -or Fault Tree Analyses (FTA) in accordance with the Safety and Mission Assurance Plan for programs and projects and in accordance with Technical PRA Procedures for Safety and Mission Success for NASA Programs and Projects, NPR 8705.5 and implemented through Glenn Work Instruction Probabilistic Risk Assessment, GLWI-QER-8720.7.

3.2.4 Electrical, Electronic, and Electromechanical (EEE) Parts

3.2.4.1 EEE Parts Specification and Planning

- a. The Contractor shall provide services to program and project organizations for internal or contracted efforts involving EEE parts Assurance. (Reference to: GLP-QER-8730.4). in accordance with Instructions for EEE Parts Selection, Screening, Qualification, and Derating, EEE-INST-002 and implemented through GRC Organizational Procedure Electrical, Electronic, and Electromechanical (EEE) Parts Assurance, Non-Standard Part Application Requests, GLP-QER-8730.4. In addition, the Contractor shall assist in preparation, analysis, and distribution of NASA Advisories (e.g., NASA TWX) and Government-Industry Data Exchange Program (GIDEP)/Acute Launch Emergency Reliability Tip (ALERT) System (see section 4.11). The contractor shall support NANADARTS, which may include preparing Alerts, Safe Alerts, and Problem Advisories.

3.2.4.2 Additional EEE Parts Activities

In addition, the Contractor shall:

- a. Obtain from the Project and maintain, the As-designed parts list (ADPL) containing quantity and project part characteristics (manufacturer and model number).
- b. Obtain from the Project and maintain the As-Built parts list (ABPL) containing quantity and project part characteristics (manufacturer and model number).
- c. Prepare Parts Program Requirements.
- d. Support NASA in writing the EEE Parts Control Plan
- e. EEE part failure analysis.
- f. Technical review of Electrical stress de-rating analysis.
- g. Mean Time Between Failure (MTBF) analyses.
- h. Review of the Radiation requirements and assessments performed by the Project. (For guidance consult “Design for Ionizing Radiation (GLWI-QER-8730.6)”

3.2.5 Quality Assurance

3.2.5.1 Program/Project Quality Assurance (QA) Support

- a. The Contractor shall provide QA support to GRC in-house and contracted Programs/Projects in accordance with GLPD 1280.1, GLPR 7120.5.30, and NPR 8735.2.

3.2.5.2 Quality Management Systems, Plans, and Processes

- a. The Contractor shall assist in defining and reviewing quality management systems and QA plans and processes in accordance with NPR 8735.2, Hardware Quality Assurance Program Requirements for Programs and Projects.

3.2.5.3 QA Activities

In addition, the Contractor shall:

- a. Evaluate workmanship against the NASA-STD-8739.6, Implementation Requirements for NASA Approved Workmanship Standards, its Table 1. Workmanship Requirements Documents, technical standards, specifications, procedures, and control documentation.
- b. Assist in developing Program/Project Quality Assurance Surveillance Plans (PQASPs).
- c. Participate in Material Review Boards (MRBs).
- d. Participate in the creation, management, and processing of program failures, non-conformances, and anomalies.
- e. Provide mission assurance expertise in preflight, rework/modifications, and integration activities in-house and at other NASA Centers.

3.2.5.4 Procurement Quality Assurance (PQA)

- a. The Contractor shall perform PQA by conducting Program supplier evaluations, conducting quality management system audits at Program prime Contractor facilities, and defining quality requirements for Program Contractor and subcontractor purchases in accordance with NPR 8735.2 Hardware Quality Assurance Program Requirements for Programs and Projects.

3.2.6 Software Assurance Software Safety (SASS)

3.2.6.1 Program/Project SASS Support

- a. The contractor shall provide SASS support to GRC in house and contracted Programs/Projects in accordance with NASA Software Assurance and Software Safety Standard NASA-STD-8739.8, NPR 7150.2 NASA Software Engineering Requirements,

and implemented through GRC specific software assurance and software safety policies, procedures, and work instructions (GLPR 8739.1 Software Assurance, GLWI-QEA-8750.1 Software Assurance and Software Safety Implementation, GLWI-QEA-8750.6 Configuration Management Audits, GLWI-QEA-8750.7 Process Audit, and GLWI-QEA-8750.8 Software Assurance and Software Safety Planning). This includes the discipline competencies of Software Safety, Software Quality, Software Assurance Planning and Management, and Software Assurance Processes and Measurement.

- b. The contractor shall perform software assurance and software safety analyses in accordance with NASA-STD-8739.8, NASA Software Assurance and Software Safety Standard, in the following areas, but not limited to:
 - i. Software Safety Analyses
 - ii. Safety-Critical Software Determinations
 - iii. Software Assurance and Software Safety Plan(s)
 - iv. Independent Software Classifications
 - v. Assess Hazard Analyses including Hazard Reports
 - vi. Identify software components associated with system hazards
 - vii. Software Safety requirements compliance in accordance with NASA-STD-8739.8 and project software safety engineering requirements and processes
 - viii. Participate in software reviews affecting safety-critical software
 - ix. Support code inspections or assessments, test reviews, safety reviews
 - x. Software Assurance Requirements and Design Analyses
 - xi. Static Code Analysis
 - xii. Software Test Plan and Software Test Procedure Analyses
 - xiii. Safety-critical items are configuration managed
 - xiv. Cyclomatic Complexity metrics for safety-critical software components
 - xv. Failures, nonconformances, noncompliance's, and anomalies
 - xvi. Software quality and software defects
 - xvii. Changes, Deviations, and Waivers.
 - xviii. Root Cause Analysis on high severity software non-conformances
 - xix. Audits on Software Development processes and practices
 - xx. Audits on the configuration management processes used for software

3.2.6.2 SASS Activities

In addition, the contractor shall:

- a. Support institutional software safety related work such as Facility Safety and facility test software.
- b. Support institutional, research labs, ground test projects, facility, or center safety permit process by performing a Software Safety Analysis, Software Safety Critical Determination, determining if the hazard analysis or hazard report used has software causes, controls, or contributions to the hazards listed, and communicate the requirements needed by the program, project, or facility.
- c. Perform tasks to ensure that requirements for NASA-STD-8739.8, Software Assurance and Software Safety Standard, are planned and

implemented when necessary.

- d. Support, review, and contribute to the safety analyses performed by the system safety engineers (e.g., system hazard analysis, system fault tree analysis).
- e. Support interactions with NASA program-level safety panels, such as the International Space Station (ISS) Computer Safety Working Group (CSWG).
- f. Provide support in the identification, collection, and communication of SASS quality and defect metrics and in developing, utilizing, and maintaining the SASS metric database.
- g. Participate in internal monthly reviews and SASS status of assigned SASS programs, projects, and facility software.
- h. Support and contribute to SASS discipline improvement activities, working group discussions, or SASS process working groups or boards.
- i. Utilize software assurance tools, such as the Software Assurance Checklist Tool for tracking and monitoring SASS tasks and requirements.
- j. Support the execution of the Software Assurance Research Program (SARP).
- k. Support NASA's SASS discipline through monthly NASA Software Assurance Working Group meetings.
- l. Provide a status of SASS work performed on their programs or projects, communicate any issues or concerns, software quality or defect metrics, audit results, or upcoming audits in a brief status update monthly.
- m. Review, contribute, and provide inputs to Software Assurance and Software Safety processes and discipline activities at GRC.
- n. Perform and report trending and analysis on quality and defect metric data to the center discipline.
- o. Report high severity software nonconformances and root cause analyses data with GRC tools like CAPA.
- p. Prepare, review, and assess Software Assurance and Software Safety Plans, Software Development Management Plans, Software Requirements, Software Safety Analysis, Software Assurance Requirement Analysis, Software Assurance Design Analysis, Test Analyses, Safety Data Packages, Hazard Reports, Hazard Analyses, and other safety and program/project documentation/records and logs to ensure compliance with applicable agency, GRC, program, and project software assurance and software safety requirements.

3.2.6.3 Capability Maturity Model Integration (CMMI) Level 2 Appraisals

- a. The contractor shall provide Software Assurance and Software Safety (SASS) support for the Capability Maturity Model Integration (CMMI) Model for Development version 2 (CMMI-DEV, V2), Maturity Level 2 appraisals, benchmarks, internal level 2 appraisals, or preparation activities.

3.2.7 Complex Electronics (CE) / Flight Programmable Logic Assurance (FPLA)

3.2.7.1 Program/Project CE/FLPA Support

- a. The Contractor shall provide CE/FLPA support to GRC in house and contracted Programs/Projects in accordance with NASA-HDBK-4008, Programmable Logic Devices Handbook, and NASA-HDBK-8739.23, NASA Complex Electronics Handbook for Assurance Professionals.

3.2.8 Welding/Nondestructive Evaluation/Test (NDE/NDT)

3.2.8.1 NDE/NDT Support

- a. The Contractor shall provide NDE/NDT support to GRC in house and contracted Programs/Projects in accordance with the National Aerospace Standard, NAS-410, or approved equivalent.

3.2.8.2 Welding Activities

In addition, the Contractor shall:

- a. Provide welding support to GRC in-house and contracted Programs/Projects in accordance with the NASA GRC Welding Manual, GLM-QE-8730.2.
- b. Have the capability to supply Certified Welding Inspector (CWI).
- c. Coordinate the implementation of GRC Welding Certification and Qualification Program.
- d. Have expertise to perform testing and analyses of manufacturing techniques, processes, and procedures pertaining to welding in support of the GRC welding program.

3.2.9 Risk Management

3.2.9.1 Continuous Risk Management (CRM) Support

- a. The Contractor shall provide risk management facilitation, planning, organization, direction, and expertise for CRM implementation within programs

and projects in accordance with Agency Risk Management Procedural Requirements, NPR 8000.4. The Contractor shall coordinate all CRM activities with the Center's Risk Manager.

3.2.9.2 Additional Facilitation Activities

In addition, the Contractor shall:

- a. Work with the Chief S&MA Officers and S&MA Leads to coordinate the assignment of CRM trainers and facilitators for projects.
- b. Conduct CRM training and Risks Identification Workshops with the projects.
- c. Coordinate the reporting of risk management activities for projects, in support of the monthly risk discipline meetings.
- d. Prepare, review, and assess Risk Management Plans and other risk and program/project documentation/records and logs to ensure compliance with applicable Agency, GRC and Program risk requirements

3.2.9.3 CRM Trainer Certification

- a. The Contractor shall obtain and maintain CRM trainer certification requirements. The Contractor shall research methods, tools, and techniques to enable and improve the CRM process. The Contractor shall maintain the Risk Management Implementation Tool (RMIT) usage and enhancements. The Contractor shall also assist the GRC representative for developments, enhancements, and assessments of Agency Risk Management related policies, standards, and guidelines.

3.2.9.4 Risk-Based Acquisition Management (RBAM) Implementation

- a. The Contractor shall support RBAM implementation into on-going NASA acquisition procedures and processes.

3.2.10 NASA Advisories and Government-Industry Data Exchange Program (GIDEP)/Acute Launch Emergency Reliability Tip (ALERT) System

3.2.10.1 GIDEP/ALERT System Usage

- a. The Contractor shall use the GIDEP/ALERT system to exchange information both internal and external to NASA.

3.2.10.2 GIDEP/ALERT File/Information Maintenance

- a. The Contractor shall maintain the GIDEP/ALERT files and related information, and the

ALERT distribution list.

3.2.10.3 ALERT Distribution/Coordination

- a. The Contractor shall review ALERTs for applicability to GRC contracts, distribute ALERTs, and determine adequacy of responses.

3.2.10.4 GIDEP/ALERT Methodology Compliance

- a. The Contractor shall comply with the established methods to evaluate, initiate, investigate, distribute, and respond to ALERTs which apply to GRC and other NASA Centers per the process and requirements of NPR 8735.1, Procedure for Exchanging Parts, Materials, and Safety Problem Data Utilizing the Government Industry Data Exchange and GLP-QE- 8735.1, NASA Advisories and Government-Industry Data Exchange Program (GIDEP)/Acute Launch Emergency Reliability Tip (ALERT) System.

3.2.11 Inspection, Measuring, and Test Equipment (IMTE)

- a. The Contractor shall support the effort to control, calibrate, and maintain IMTE that affects quality or safety at GRC, by performing the following:
 - i. Evaluate the impact on safety and quality of using uncalibrated IMTE.
 - ii. Assist third-party mediators to resolve any IMTE safety and/or quality issue(s), including the issuance of a stop work order or waiver for continued use based on the results of the evaluation.
 - iii. Assist the approving authority for calibration interval extension requests beyond 20 percent of the calibration interval.
 - iv. Assist in the review of GRC Measuring and Test Equipment Out-of-Tolerance Impact Analysis Reports.
 - v. Audit IMTE processes on a quarterly basis for safety compliance, documentation (e.g., forms, labels, task qualification, etc.), traceability (e.g., standards, reports, technical data, environment, facility, etc.), and procurement quality.

3.2.12 Independent Assessment and Audits

- a. The Contractor shall provide programmatic, technical, and process expertise within each S&MA discipline for conducting Independent Assessments (IAs) to

enhance the success of Programs and Projects, and the effectiveness of S&MA processes implemented in Programs and Projects.

- b. The Contractor shall perform the following as a part of IA Activities:
 - i. Develop and maintain IA work plans.
 - ii. Perform assessments in accordance with approved plans.
 - iii. Develop report of analysis, observations, findings, and recommendations, and present report to GRC S&MA for approval.
 - iv. Document findings and supporting objective evidence.
 - v. Provide briefings on observations, findings, and recommendations to GRC S&MA.
 - vi. Coordinate and track closure of report observations and any assigned actions as required.
 - vii. Participate in Headquarters (HQ) S&MA led Audits and Reviews, as requested (NPR 8705.6).
 - viii. Report significant issues or concerns developed by the audit(s) immediately to GRC S&MA.
 - ix. Ensure that audit/review team members have the requisite program/project, subject matter, and auditor experience and competency to participate in program/project audits and review onsite audits and reviews.
 - x. Perform all tasks in accordance with approved plans/procedures.

3.2.13 Assurance Methodologies and Technologies

3.2.13.1 Advance the State-Of-The-Art Assurance Technologies

- a. The Contractor shall participate in activities to advance the state-of-the-art assurance methodologies and technologies in support of NASA research and technology initiatives.
 - i. The Contractor shall conduct or participate in research efforts in new technologies for the purpose of identifying deployable advanced assurance techniques.
 - ii. The Contractor shall also propose concepts for innovative methodologies and technologies.
 - iii. The Contractor shall carry out activities to advance S&MA capabilities in performing assurance functions. These activities include evolving or improving existing assurance and analysis techniques, and proposing and

developing new assurance concepts.

3.3 Operational Safety

The Contractor shall provide the necessary management, personnel, equipment, and supplies (not otherwise provided by the Government) required to perform services for planning, implementation, and assessment of institutional and facilities operations-related safety hazards. The Contractor shall support the development, management, and communication of Center- wide safety policy guidance and requirements in compliance with OSMA and OSHA policies and directives. The Contractor shall address organizational safety concerns by providing Subject Matter Expert consultation, including methodologies for risk identification, mitigation and acceptance, independent assessments and process verifications to ensure operational compliance with policies and standards, safety engineering reviews and recommendations for institutional and test-specific designs, and analyses and recommendations for operational safety decisions. The Contractor shall work with safety Subject Matter Experts (SME's) to manage and keep the Division's website content up to date.

3.3.1 General Requirements

The Contractor shall support the primary safety programs at the GRC, including the Safety Permit Program, Facility and Construction Inspection Program, and the execution of Facility System Safety Disciplines. Primary engineering disciplines encompassed within this scope include Electrical Safety, Explosives Safety, Facility Systems Safety, Fire Safety and Prevention, Lifting Devices and Equipment, Process Safety Management and ground-based Pressure Vessels and Pressurized Systems. The contractor shall support the implementation of the requirements of NASA Procedural Requirements, NASA technical standards and the GRC Glenn Safety Manual (GSM).

The Contractor shall incorporate the philosophy that safety and health program performance is dependent upon the pursuit of continuous improvement. It is for this reason that the OSHA Voluntary Protection Program (VPP) is placed in high regard. Protection of our workforce and visitors remains our highest priority. Safety shall be both an individual and organizational responsibility for all who work at NASA. It shall be GRC's commitment and charter to strive to achieve a Safety and Health program that prevents mishaps and meets or exceeds NASA, Federal, and OSHA VPP requirements.

3.3.1.1 Mishap, Close Call Reporting, Investigation, and Recordkeeping

- a. The Contractor shall support the GRC Mishap Program Manager in gathering incident details for monthly and annual reports, event investigations, and assist in meeting recordkeeping policies.
- b. The Contractor shall support the Interim Response Team (IRT) by assisting in protecting incident evidence and overall gathering and recording of incident documentation.

3.3.1.2 Center Emergency Preparedness, Response, and Recovery

- a. The Contractor shall provide input to emergency planning and preparedness documents such as the Emergency Management Plan and Center Continuity of Operations Plan (COOP).

- b. The Contractor shall participate in emergency drills and exercises.
- c. The Contractor shall support the Emergency Response Team (ERT) by assisting established onsite Incident Command System (ICS). Actions could include establishing preliminary air testing and monitoring, chemical collection and analysis, and overall site safety and health support.
- d. The Contractor shall support post-recovery efforts by means of COOP exercises and procedures.

3.3.1.3 Safety Education, Training, and Certification

- a. The Contractor shall develop, present, and maintain applicable safety and health educational resources, training curricula, and employee certifications. GRC utilizes an electronic database known as QCard that the contractor shall support in its population and upkeep of employee training requirements, medical clearances, and the associated certifications.
- b. The Contractor shall support the Safety and Health Training Program, in coordination with the GRC Human Capital Development Division and the Office of Education, in the evaluation of proposed training, maintenance of adopted and created safety and health training courses required and recommended for GRC residents, new employees, supervisors, visitors, and students.

3.3.1.4 GRC Safety Management Resources

- a. The Contractor shall support the development, presentation, and maintenance of NASA and GRC Safety Programs and Procedures. This includes supporting agency working groups and policy and procedural reviewers as chapter point of contact, as described in GLP-QS-1410.1 Creating and Revising Chapters for the GRC Safety and Occupational Health Programs Manuals.
- b. The Contractor shall support the safety program through the development, use, and maintenance of agency and in-house electronic databases and reporting mechanisms.
- c. The Contractor shall maintain Info Base program data for emergency responder use. Data includes evacuation plans, utility information, firefighting equipment, hazardous materials, chemical SDS, etc.
- d. Risk management: The Contractor shall support the identification and reduction of risks to Center missions and well-being of personnel, facilities, and the local community.

3.3.1.5 GRC Safety Program Compliance

- a. The Contractor shall support of internal and external safety program audits and assessments conducted by Federal, state, and local authorities, NASA Headquarters, and internally by GRC.
- b. The Contractor shall assist in the development of annual safety reports such as the OSHA Annual Report and Annual Self-Assessment.

3.3.2 Facility System Safety

3.3.2.1 Construction Safety Program

- a. The Contractor shall support project design reviews, facility hazard assessments, and configuration control related to changes to a GRC facility, including the review of project and contractor Health and Safety Plans (HASPs).
- b. The Contractor shall conduct assigned construction and facility renovation site inspections and record those site visits and inspection findings within the Agency's inspection system, STAR.
- c. The Contractor shall support the implementation of the requirements of the GRC Glenn Safety Manual (GSM) as associated with Construction Safety.

3.3.2.2 Facility Inspection Program

- a. The contractor shall maintain and administer the GRC Building Inspection program (STAR) for use by the Building Inspectors and various other branches at GRC.
- b. The contractor shall conduct Facility Safety & Health inspections and Facility Fire inspections for all facilities at both Lewis Field and Plum Brook Station sites compliant with Agency policy, GSM Chapter 24, GSM Chapter 31 and OSHA VPP guidelines. Enter inspection information and findings into STAR and follow status of corrective actions. Includes substation inspections at both Lewis Field and Plum Brook Station as requested by CS Electrical Safety Engineer through TR.

3.3.2.3 Personal Protective Equipment (PPE) and Job Hazard Analysis Program

- a. The Contractor shall support GRC operations by ensuring the communication and verification of compliance associated with the use of job hazard analysis, personal protective equipment selection, and overall workplace hazard assessments.

3.3.2.4 Fire Protection and Prevention Program

- a. The Contractor shall support the GRC Authority Having Jurisdiction (AHJ) through fire protection system design reviews, the completion and recordkeeping of fire safety inspections, support fire investigations, completion of annual building emergency evacuation drills and training, assist in building occupancy reviews, and support the fire extinguisher training program and hot work authorizations as requested.

3.3.2.5 Fall Protection Safety Program

- a. The Contractor shall support the program by reviewing fall protection plans, fall protection systems including horizontal lifelines, and providing fall protection guidance through training and policy verification.

3.3.2.6 Electrical Safety Program

- a. The Contractor shall support the SHeD Electrical Safety through the completion of annual inspections of GRC substations, training of low and high voltage personnel, and providing review and guidance to projects and facilities.

3.3.2.7 Lock Out/Tag Out (LOTO) Program

- a. The contractor shall support the implementation of the Area Clearance process and implementation and maintenance of the Lock Out/Tag Out program for pressurized, electrical, and other systems of stored energy.

3.3.2.8 Shop Safety

- a. The contractor shall administer a shop safety program that includes an annual assessment of shops/machine guarding, review of job hazard analysis and personal protective equipment.

3.3.2.9 Regulatory Permit Requirements

- a. The contractor shall administer the implementation of the Confined Space Safety program.
- b. The Contractor shall administer the implementation of the Excavation Safety program.
- c. The contractor shall administer the implementation of the Hot work Permits Program, including an annual inspection of designated hot work areas.

3.3.2.10 Pressure and Process System Safety

- a. The contractor shall review designs of proposed, existing or modified systems involving pressurized vessels and or piping (PVS) related to GRC central systems, buildings or test facilities for Lewis Field. Review for compliance with GRC requirements, NASA, OSHA or national consensus standards, hazard identification, mitigation, and general process safety. Includes designs of proposed, existing or modified process systems including oxygen (or other oxidizers), hydrogen (or other fuels), and cryogenics.
- b. The contractor shall provide support to facilitate advanced hazard analysis techniques in support of process system safety.

3.3.2.11 Process Safety Management

- a. The contractor shall support and provide technical guidance to the implementation of Process Safety Management.
- b. The contractor shall provide facilitate advanced hazard analysis techniques, such as HAZOP, in support of process safety management.

3.3.3 Test Operations

3.3.3.1 Safety Permit Program

- a. The Contractor shall support the program by maintaining the GRC Electronic Safety Permit Program, supporting the Safety Committees through reviewing safety permit requests and associated documentation (i.e., hazard analysis and qualified operators lists), and providing safety and health guidance and expertise.

3.3.3.2 Pressure System Safety Program

- a. The Contractor shall support the GRC Pressure Systems Safety Program by assisting in pressure system certification and recertification through design reviews, construction, operations, inspections, and maintenance activities.

3.3.3.3 Gas and Liquefied Gas Safety Program

- a. The Contractor shall support facility operations and testing in the safe storage and utilization of gaseous and liquid chemicals (e.g. oxygen, hydrogen, methane, etc.). This includes supporting determinations for selections and installation of detection systems for out-of-limit oxygen levels, combustible gases and vapors, and toxic gases.

3.3.3.4 Explosives, Propellant, and Pyrotechnics Safety Program

- a. The Contractor shall support the GRC Explosive Safety Officer (ESO) in annual explosive site licensing, assessments, inspections, training of handlers and maintenance of policies and procedures in the storage, handling and utilization of explosives, propellants, and pyrotechnics.

3.3.3.5 Lifting Device and Equipment (LDE) Program

- a. The Contractor shall support the GRC LDE Manager (LDEM) for review of critical lift plans, oversight of critical lifts, LDE field inspections, and verifications of system and equipment repairs and their proper utilization.

3.3.4 Organizational Safety Support

3.3.4.1 Armstrong Test Facility

- a. Safety engineer PSM, HAZOP, hazard analysis: The contractor shall review designs of proposed, existing or modified systems involving pressurized vessels and or piping (PVS) related to GRC central systems, buildings or test facilities for Lewis Field. Review for compliance with GRC requirements, NASA, OSHA or national consensus standards, hazard identification, mitigation, and general process safety. Includes designs of proposed, existing or modified process systems including oxygen (or other oxidizers), hydrogen (or other fuels), and cryogenics. The contractor shall provide support to facilitate advanced hazard analysis techniques in support of process system safety.
- b. Safety specialists support: Provide support at ATF to assure appropriate Operational Safety and Health requirements are incorporated into the planning, procurement, build-up/assembly, integration, testing, and post-test teardown of test-specific equipment/hardware in accordance with NASA and customer specified procedures. Assist in assuring GRC operational safety requirements specified in the Glenn Safety Manual (GSM), GLM-QS-1700.1 and the Occupational Health Manual, GLM-QS-1800.1 are fulfilled for all activities performed under this task. Provide guidance, advice, presentations, and procedures, as appropriate, to assure GRC safety requirements are met. Serve as on-site QSS Safety Engineer in interfacing with the Operational Safety Branch (Code QSS), and other test staff. Coverage may include non-standard shifts or second and/or third shift test support. Support entails Lead Safety Engineer for SEC tests. Detailed scope and deliverables are specified in items below.

- Attend assigned Program planning, scheduling and coordination meetings
- Provide inputs to facilitate safe and timely buildup/test/teardown operation.
- Perform verification inspections and verification of certifications when Safety Permit conditions, operational check sheets, or GSM policy requires compliance actions and/or certifications, permits

3.3.4.2 Facility Testing Division (FT) Safety Support

- a. The contractor shall provide support to Code FT to develop and monitor the implementation of programs for compliance with OSHA, Agency and GRC safety and health requirements.

3.3.4.3 Logistical and Technical Information Division (LTID) Safety Support

- a. The contractor shall develop, implement, and provide consultation to the LTID safety and health program that is in compliance with OSHA, Agency and GRC safety and health requirements.

3.3.4.4 Process Safety Management (PSM) Audit

- a. Perform Process Safety Management Compliance Audit of Glenn Research Center's Armstrong Test Facility for the covered PSM processes at the In-Space Propulsion facility. The requirements of OSHA 1910.119, "Process Safety Management" shall be used as the basis for the assessment. Submit the audit results to the Office of Safety & Mission Assurance. Any deficiencies noted shall be documented and referenced against the requirement of OSHA 1910.119. The audit shall occur every 3 years. It is anticipated that travel costs for 2 auditors would be required.

3.4 Occupational Health

- a. The Contractor shall provide the necessary management, personnel, equipment, and supplies (not otherwise provided by the Government) required to support health services and programs, which are protective of worker and visitor health in all GRC working environments. The Contractor shall support compliance to NASA Office of Chief Health & Medical Officer (OCHMO) requirements, Federal (OSHA, NRC), state, local, and Center Occupational Health program, and policy requirements. The Contractor shall work with health Subject Matter Experts (SME's) to manage and keep the Division's website content up to date

3.4.1 General Requirements

- a. The Contractor shall provide technical expertise to support health hazard anticipation, recognition, management, assessment, and recommendations for the control and prevention of exposures to biological, chemical, radiological, and physical hazards.

3.4.1.1 Health Education, Training, and Certification

- a. The Contractor shall develop, present, and maintain applicable health educational resources, training curricula, and employee certifications.
- b. The Contractor shall be responsible for professional development costs, training, travel, certification maintenance and licensure fees for their employees.

3.4.1.2 GRC Health Management Resources

- a. The Contractor shall support the development, presentation, and maintenance of NASA and GRC Health Programs and Procedures. This includes supporting agency working groups and policy and procedural reviewers as chapter point of contact, as described in the most current version of [GLP-QS-1410.1](#).
- b. The Contractor shall support the health program through the development, use, and maintenance of agency and in-house electronic databases and reporting mechanisms.
- c. GRC Health Program Compliance
 - a. The Contractor shall support of internal and external health program audits and assessments conducted by Federal, state, and local authorities, NASA Headquarters, and internally by GRC.

3.4.1.3 Employee Involvement and Outreach

- a. The Contractor shall support and participate in safety and health events such as: GRC's Annual Safety and Health Awareness Day, periodic public open house events, monthly Safety Bulletins, and established safety and health committees.

3.4.2 Environmental Health

3.4.2.1 Industrial Hygiene Services

- a. The Contractor shall support compliance with all relevant regulatory requirements to satisfy applicable guidance documents dealing with the recognition, evaluation, and control of workplace factors or stresses that may cause sickness, impaired health, and well-being or significant discomfort and inefficiency among workers. The Contractor shall support the implementation of the requirements of the most current version of [NPR 1800.1, NASA Occupational Health Program Procedures](#) and the [GRC Occupational Health Programs Manual](#).
 - i. The Contractor shall support implementing of hazardous chemical programs per NASA requirements, and corresponding GOHPM chapters via relevant GRC hazard assessment processes.
 - ii. The Contractor shall support implementing of hazard assessment programs including hazard assessment/exposure assessment per NASA requirements, and corresponding GOHPM chapters via relevant GRC hazard assessment processes.
 - iii. The Contractor shall support the implementing of the Legionella & Drinking Water Program requirements of the most current version of the [GRC Environmental Programs Manual](#).

3.4.2.2 Chemical Management Programs

- a. The Contractor shall support the implementation of chemical management programs, including hazard communication, chemical hygiene, and acquisition of hazardous chemicals and materials. The Contractor shall support the implementation of the requirements of the most current version of [NPR 1800.1, NASA Occupational Health Program Procedures](#) and the [GRC Occupational Health Programs Manual](#).
 - i. The Contractor shall support the implementation of the inventory system to collect data on all incoming chemicals.
 - ii. The Contractor shall review incoming chemicals and materials with respect to existing safety, health, and homeland security requirements.
 - iii. The Contractor shall perform an assessment of the chemical inventory at GRC once a year.

3.4.2.3 Chemical Sampling and Analysis

- a. The Contractor shall support chemical sampling and analysis services and expert consulting in the areas of chemical analysis for contaminants in a variety of bulk samples and other media anticipated in supporting occupational health, facilities testing, research operations, and environmental tasks. These services include operation and maintenance of a chemistry laboratory, collection of various field samples, coordination of sampling and analysis tasks performed by subcontractors or other external entities, if required: coordination of sample analysis by off-site accredited laboratories and use of good laboratory practices based on government reference methods. The Contractor shall support the implementation of the requirements of the most current version of [NPR 1800.1, NASA Occupational Health Program Procedures](#) and the [GRC Occupational Health Programs Manual](#).
 - i. The Contractor shall encompass the full range of standard policies, methods, practices, topics, and issues expected with a chemistry lab having the following analytical equipment:
 - 1. Optima 8000 ICP-OES spectrometer
 - 2. PinAAcle 500 flame atomic absorption (AA) spectrometer
 - 3. Atomic Absorption for Mercury (Automated Cold Vapor Technique)
 - 4. Spectro LNF Q200 Particle Counter (oil analysis)
 - 5. Parr 6300 Automatic Isoperibol Calorimeter
 - 6. Mitsubishi Chemical TOX-100 total organic halogen analyzer
 - 7. Viscometer
 - 8. Karl Fischer Titrator
 - 9. Hach DR/2010 Spectrophotometer
 - 10. Hach Model 2100P ISO Portable Turbidimeter
 - 11. Orion Star A111 Benchtop pH Meter

3.4.2.4 Food Sanitation

- a. The Contractor shall support the implementation of food sanitation to prevent outbreaks of food-borne illnesses. The Contractor shall support the implementation of the requirements of the most current version of [NPR 1800.1, NASA Occupational Health Program Procedures](#) and the [GRC Occupational Health Programs Manual](#).

3.4.2.5 Institutional Operational Safety Support

- a. The Contractor shall provide relevant occupational health support to programs described in Facility Systems Safety and Test Operations programs of this SOW (e.g., gas monitoring as needed, Hazardous Operations, PPE, Facility Inspections, Safety Permit reviews, HASP, Confined spaces, Construction design review, Hot Work, etc.) as identified in the most current version of [NPR 8715.1 NASA Safety and Health Programs](#) and the [GRC Safety Manual](#).

3.4.2.6 Occupational Health Equipment and Laboratory Coordination

- a. The Contractor shall coordinate the activities associated with maintaining the occupational health laboratories and equipment therein. Such tasks may include calibration, maintenance, and coordination of repairs of instrumentation, preparation for occupational sampling/surveys, and maintenance of adequate supplies of laboratory consumables and sampling media. The Contractor shall support the implementation of the requirements of the most current version of [NPR 1800.1, NASA Occupational Health Program Procedures](#) and the [GRC Occupational Health Programs Manual](#).
 - i. The contractor will make recommendations to the government when additional equipment needs are identified.

3.4.2.7 Automated External Defibrillators (AED) Program

- a. The Contractor shall provide oversight for the GRC Center-wide AED Program (approximately 62 AEDs at Lewis Field and approximately 15 AEDs located at the ATF site) and ensure that medical protocols are met. Note that the stated AED program oversight requirement will not include any training requirement, as the training element is managed by the GRC Training organization. The Contractor shall support the implementation of the requirements of the most current version of [NPR 1800.1, NASA Occupational Health Program Procedures](#) and the [GRC Occupational Health Programs Manual](#).

3.4.2.8 Health Physics

- a. The Contractor shall support the health physics effort which is focused on using sources of ionizing and non-ionizing radiation, including lasers, in a manner that is not only safe, but compliant with applicable regulations and consistent with recognized guidance documents. The Contractor shall support the implementation of the requirements of the most current version of [NPR 1800.1, NASA Occupational Health Program Procedures](#) and the [GRC Occupational Health Programs Manual](#).
 - i. The Contractor shall provide various health physics services to include, but not be limited to, coordinating instrument calibration, dosimetry program business services, and various health physics technical services associated with: Radiation Protection for Radioactive Materials, Radiation Protection for Radiation – Generating Equipment, and Non-Ionizing Radiation and Laser Safety.

3.4.3 Medical, Health and Wellness

3.4.3.1 Medical Services

- a. The Contractor shall provide comprehensive medical services to maintain a healthful and productive workforce, support compliance with all relevant regulatory requirements to satisfy applicable guidance documents dealing with the health maintenance, physical exams, first aid treatment and emergency care.
 - The Contractor shall provide services in accordance with provisions of [NPR 1800.1, NASA Occupational Health Program Procedures](#) or subsequent replacements/updates.
 - The Contractor shall enter a contract with Quest or LabCorp for clinic lab work as those are the only two labs capable of syncing with the NASA Cority Electronic Health Record System.
 - The Contractor shall operate the NASA GRC Clinic, located at the LF address, 5 days per week (exclusive of official Government holidays and when the building is officially closed), Monday through Friday, between the hours 7:00 a.m. through 11:30 AM, and 12:30 PM through 4:00 PM each day.
 - 1. Staff Clinic personnel to be available for emergency response during the lunch period. A physician, physician assistant or nurse practitioner shall be present at the Medical Services Clinic (MSC) during all hours of normal operations. The responding personnel shall be trained, qualified, and pre-badged to meet this staffing requirement when regular staff are on leave or in training.
 - The Contractor shall encompass the full range of standard policies, practices, topics, and issues expected with a walk-in Clinic, such as the following elements, but not limited to:
 - 1. General Clinic operating policies and procedures.
 - 2. Emergency Ops Plan (EOP).
 - 3. Mass Casualty Policy.
 - 4. Equipment preventive maintenance, calibration, acquisition, and repair.
 - 5. Managing potential adverse reactions.
 - 6. Formulary.
 - 7. Multi-Dose Vials.
 - 8. Storage and dispensing of Medicines.
 - 9. Patient confidentiality and release of information.
 - 10. Content, documentation to include revisions and late entries and retention of the medical record.
 - 11. Use of the NASA Electronic Health Records (EHRS) Official Record (NOTE: refer to §3.4.3.2 for EHRS requirements), Response to Outside Inquiries of Medical Records.
 - 12. Work Related Incidents, Laboratory Clinical Testing.
 - 13. CLIA, CAP, and other related certificates.
 - 14. Clinic drug dispensing license.
 - 15. Patient information documents such as a Clinic services brochure and the Patient Bill of Rights.
 - 16. Exposure Control Plan (BBP).
 - 17. Infection Control Plan; Quality Assurance Program for chart and medical

data/information.

18. Allergic reaction, anaphylaxis, chest pain, drug, and dizziness events.
19. Emergency medication administration.
20. Flu Vaccine Administration.
21. Hydrofluoric Acid Exposure.
22. Narcan Administration.
23. Respiratory Distress, Hypoglycemia, Chart Peer Review.
24. Job descriptions for staff positions such as Medical Director, Nurse Practitioner, Staff Physician, Physician Assistant, Nurse, Supervisor, etc.
25. Physical examination such as surveillance, certification, clearances, or Health Maintenance Examination (HME) criteria/protocol.
26. Competency of staff checklist/process; New hire orientation, etc.
27. Meet all the requirements found in [NPD 1850.1, NASA Medical System Quality Assurance](#).

Pre-pandemic Clinic Utilization is presented below:

Activity	Historical volume of services provided	Comments
Day-to-Day Services		
Complete Physical Examination (Health Maintenance Examination)	806	Reported volume of service may include certification and surveillance examinations also reported within this document. NOTE: Count includes total patient load, meaning both civil servant & contractor employees
Medical Clearances for Fitness Center Membership	27	Civil servant clearances may also be included in reported volume of service for Health Maintenance Examination NOTE: Count includes civil servant employees only
International Traveler Health Services	52	NOTE: Count includes civil servant (CS) employees only, although the contractor data is expected to be similar to CS data
Annual Influenza Immunizations	954	Total patient count for influenza vaccinations
Initial Onsite Treatment of Occupational Illness and Injury & Treatment of Acute Non-Occupational Illness and Injury	180	1) Note that this data is not broken out between emergency and non-emergency treatment 2) This number represents the of tests, <i>not</i> numbers of individuals; evaluations may include multiple tests 3) Civil servant evaluations may also be included in reported volume of service Health Maintenance Examination
Administration of Prescriptions and Tests	67	
Surveillance Evaluations for Workers Associated with Hazardous Exposures		
Asbestos	12	There is an estimated increase of 5 <i>additional</i> tests to support anticipated future contractor requests totaling 17 expected exams
Silica	5	
Bloodborne Pathogens	7	There is an estimated increase of 10 additional tests to support anticipated future contractor requests totaling 17 expected exams
Hearing Conservation	117	There is an estimated increase of 280 additional tests to support anticipated future contractor requests totaling 397 expected exams
Certification Examinations		
Confined Space	4	There is an estimated increase of 190 additional tests to support anticipated future contractor requests totaling 194 expected exams
Crane/Forklift Operator/Motive Operator	35	There is an estimated increase of 230 additional tests to support anticipated future contractor requests totaling 265 expected exams
Food Handler	2	
Occupational Respirator Use	38	There is an estimated increase of 170 additional tests to support anticipated future contractor requests totaling 208 expected exams
Ordinance Handler	5	There is an estimated increase of 15 additional tests to support anticipated future contractor requests totaling 20 expected exams

Soldering	6	There is an estimated increase of 10 additional tests to support anticipated future contractor requests totaling 16 expected exams
Flight Associated Examinations	16	Note: these exams may be re-routed to NASA Johnson Space Center
Audiogram Review	8	
Audiology/Otolaryngology follow-up evals	2	
Fitness Center Membership	1211	
Fitness Center visits/day	130	
Fitness Center member Screening & Clearance (e.g. BP Checks, Body Fat Analysis and Fitness Assessments)	941	
Orientation and Instruction (includes personal training, consultations, orientation, and program updates)	1358	
Potential IDIQ Requirements <i>Note: All IDIQ services ordered will be ordered, proposed, funded, invoiced and paid under individual IDIQ order</i>		
Laboratory tests		Laboratory tests, including X-rays and stress tests are included in other services for which data is provided. Offerors are advised to propose to the requirements of the SOW for the required

3.4.3.2 Electronic Health Records (EHRS)

- a. The Contractor shall use the NASA EHRS, as described in:
 - i. NPR 1800.1, but not limited to: §§P2; 2.13.2.2; 2.13.3.1; 4.1.3.6 and 7.2.5.
 - ii. Records Management Plan for the National Aeronautics and Space Administration (NASA) dtd. February 28, 2012
 - iii. Memorandum from the NASA Chief Health and Medical Office RE: Electronic Health Record System Update, dtd. August 17, 2017
 - iv. Memorandum from the Office of Management and Budget RE: Transition to Electronic Records, dtd. June 28, 2019

3.4.3.3 Employee Assistance Program

- a. The Contractor shall provide and manage the GRC Employee Assistance Program (EAP) to assist GRC civil servant employees, their families, and GRC management with issues that adversely impact the employee's job performance.
 - i. The Contractor shall implement the EAP in accordance with the latest published edition of the Employee Assistance Professionals Association (EAPA) Standards and Professional Guidelines for Employee Assistance Programs. One (or more) EAP Counselor(s) shall be assigned to the contract on a part-time basis. One EAP Counselor shall be designated as the primary Counselor for program management
 - ii. The Contractor shall conduct and accomplish all the requirements delineated in the most current version of NASA Occupational Health Program Procedures [NPR 1800.1, NASA Occupational Health Program Procedures](#) and the [Office of the Chief Health and Medical Officer, Employee Mental Health Resources & Information/EAP](#).
 - iii. The Contractor shall provide support/response services to the Critical Incident Stress Management (CISM) Program.
 - iv. The Contractor shall support safety and health events coordinated by NASA

3.4.3.4 Wellness and Fitness Center

- a. The Contractor shall provide staff to manage and operate the existing Lewis Field (LF) Fitness Center and shall establish and maintain a comprehensive and integrated Health Promotion and Wellness Program (HPWP) to facilitate employee awareness, increase health knowledge and support behavioral modification to the maximum extent among the largest possible spectrum of the GRC workforce.
 - i. The Contractor shall provide various health and fitness programs to include, but not be limited to, administration of a health enhancement program, provide fitness assessments, provide, and promote motivational programs to improve health, provide fitness assessments and appropriate training classes to help members achieve their fitness goals, and support the Agency Occupational Health Program (OHP) reviews.
 - ii. The HPWP shall provide the awareness, educational and motivational components of each of the elements covered under the base services sections as identified with the most current version of [NPR 1800.1, NASA Occupational Health Program Procedures](#) and support agency-wide health and wellness initiatives.
 - iii. The Contractor shall operate the LF Fitness Center, 5 days per week (exclusive of official Government holidays and when the building is officially closed), Monday through Friday between the hours of 6:00 a.m. through 7:00 p.m. each day unless released in the event of an early dismissal, a delayed shutdown or release due to weather (.e.g., snowstorm, tornado, hurricane, etc.). The locker room shall remain open until 7:30 p.m.
 1. The Fitness Center will be staffed with at least one Fitness Specialist during the hours of operation
 - iv. The Contractor shall encompass the full range of policies, practices, topics, and issues covered by each of the following elements, but not limited to:
 - v. Fitness Center Application, GRC Fitness Center Operations Manual, Equipment Repair Log, Orientation Checklist

3.5 HQ Health and Safety

3.5.1 Description:

There are four primary safety and health tasks and the following requirements. The I-IV tasks are: Safety and Occupational Health Program Management Support, Industrial Hygiene and Environmental Laboratory Sampling and Analyses, General Safety and Health requirements and Documentation, References, and Records Management. This SOW includes the Performance Metrics, Experience, and the Task conditions. The costs associated with Section 3.5 of the SOW are included in the IDIQ portion of the cost proposal. However, the government will expect to see a cost estimate for performing tasks in section 3.5 of the SOW.

Task Topics include:

- I. Safety and Occupational Health Program Management Support: includes industrial hygiene, health physics, hazard program management, and safety and health training.
- II. Industrial Hygiene and Environmental Laboratory Sampling and Analyses includes lab analysis, sampling equipment, maintenance/calibration of sampling equipment and sampling supplies.

III. General Safety and Health Program Requirements: Reports, Awareness/outreach, Collateral duty Safety Representative Program support

IV. Documentation, References, and Records Management: Support implementation of Health and safety records per NASA requirements.

3.5.2 Safety and Occupational Health Program Management Support

3.5.2.1 Hazard Identification subtasks

- a. Conduct Hazard identification consists of unexpected, quick responses to urgent customer concerns; Industrial Hygiene (IH) and safety surveys; and document review and evaluation.
- b. Respond to urgent customer concerns which typically consists of the ability to immediately respond to phone and email notifications of areas of concern from the buildings' populace to discover and characterize uncontrolled hazards, and to recommend to the government the next course of action.
- c. Perform safety and health surveys which consist of IH, safety, ergonomic, general safety inspections, and fire life safety assessments of general office space and building operations and maintenance functions; and specialized post-renovation, pre-occupancy sampling and evaluation for the purpose of assuring that the space is safe for occupancy.
 - i. Provide additional safety or expert technical consultant support (e.g. life safety, radiation and health physics, explosive and ammunition, or safety related engineering) may be requested by the TM. Availability, cost, and time will be agreed to prior to approval and implementation, per SHeMA2 contractual requirements.
- d. Review and update the NASA HQ Baseline Safety and Occupational Health Assessment. A NASA Headquarters Baseline Safety and Health Assessment has been completed. This document focuses primarily on health hazards found at Headquarters. This is a living document that needs to be reviewed and updated on an annual basis, or when significant changes occur in the work environment that introduce permanent new hazards or hazard controls.
 - i. Maintain the baseline safety and health assessment using approved Occupational Safety and Health Administration (OSHA) and National Institute of Occupational Safety and Health (NIOSH) and American Conference of Governmental Industrial Hygienists (ACGIH) methodologies. This effort also includes maintaining a hazardous material inventory of all chemicals onsite and their associated Safety Data Sheets. If new health hazards are introduced at Headquarters the contractor shall:
 - 1. Develop sampling strategies to quantify exposure to physical and chemical hazards that follow OSHA and ACGIH accepted practices.
 - 2. Review historic sampling data and analysis methods used in existing industrial hygiene (IH) surveys, along with equipment calibration records.

3. Conduct baseline IH sampling (if necessary); and use a certified laboratory to process industrial hygiene samples
 4. Document a hazardous material inventory.
 5. Provide detailed descriptions of identified Safety and IH hazards to be included in the Baseline Hazard Assessment; this may include the sampling strategy, sampling equipment identification and calibration records, and analysis of any supporting laboratory results
 6. Provide a list of assessment findings that need further analysis.
 7. Provide a workplace evaluation and monitoring plan (if necessary); and
 8. Provide expert recommendations for hazard mitigation that follow the hierarchy of controls.
- e. Perform a review and evaluation of documents provided by NASA for the purpose of hazard assessment. Typically, this involves special events, permits, blueprint reviews in association with demolition, renovation and new construction, including audits of health and safety plans, and reviews of policy or procedures.

3.5.2.2 Provide Safety & Health Training per the HQ specific safety training plan,

- a. Develop highest priority training classes, implement a training schedule, and provide instructor led classes. (Priority is the development of Supervisory Safety and Contractor Representative's Safety Training.)

3.5.2.3 Safety and Health Compliance Program Development.

- a. Develop/update or modify written safety and health programs to meet specific requirement of the NASA and OSHA required hazard control programs. Many draft programs exist; however, they need refinement and then comment incorporation after internal HQ review by NASA stakeholders. Notionally, these written programs shall include:
 - i. Accident Investigation.
 - ii. Bloodborne Pathogens Prevention.
 - iii. Contractor Safety Oversight & Management.
 - iv. Equipment & Tool Safety Inspection Program.
 - v. Ammunition.
 - vi. Hazardous Communication.
 - vii. Hazard Correction and Residual Risk Acceptance.
 - viii. Radiation Safety (Non-Ionizing and Ionizing).
 - ix. Control of Hazardous Energy (Lockout/TagOut).
 - x. Medical Surveillance.
 - xi. Noise & Hearing Loss Prevention.
 - xii. Collateral Duty Safety Representative Program.
 - xiii. Hazard Identification & Inspection.
 - xiv. Others as Identified.
- b. Recordkeeping and Performance Measurement
 - i. Develop, collect, and analyze performance metrics and dashboards related to the operation, quality assurance, and oversight of the safety programs. The scope of these metrics are wide ranging and include, but are not limited to, customer satisfaction, timeliness, hazard tracking and resolution, goal and objectives, training

feedback, accidents (utilizing the NASA Mishap Information System (NMIS), oversight systems, inspection results, survey results, costs and usage, and levels of effort.

- ii. Ensure NASA HQ IH Sampling Equipment is factory maintained, calibrated, and certified in accordance with manufacturer's recommendations to assure data integrity. Equipment preparation, shipping and calibration should follow the manufactures recommended procedures
 - iii. Maintain all recordkeeping for HQ safety and injury/illness cases in accordance with NASA and OSHA requirements, and coordinating with the medical, environmental health, workers' compensation staff on all injury /illness cases. The safety specialist must provide the TM/COR/TR monthly statistical data on mishaps and close calls no later than the 15th of each month.
- c. Perform other environmental health related duties, as requested by the Headquarters Occupational Health Manager/TM.
- i. Provide Non-Routine services include providing technical assistance during emergencies involving chemical and biological agents or during disasters. This may include assessing the situation, collecting, and analyzing air and water and other media samples, evaluating the results, and recommending corrective actions.

3.5.3 Industrial Hygiene and Environmental Laboratory Sampling and Analyses.

3.5.3.1 Upon request:

- a. The Contractor may be instructed to take samples that require laboratory analysis in addition to utilizing direct reading instruments. (Contractor will provide cost estimates for sampling equipment rental, sampling media, and laboratory costs for sampling analysis)
- b. The Contractor shall use government provided equipment or may be asked to provide monitoring equipment, chemical sampling and analysis services supporting sampling and monitoring efforts in accordance with relevant regulatory requirements to satisfy applicable guidance documents dealing with the recognition, evaluation, and control of workplace factors or stresses that may cause sickness, impaired health, and well-being or significant discomfort and inefficiency among workers.
- c. The Contractor shall coordinate the activities associated with maintaining the IH equipment, both contractor supplied and Government-furnished, used for their tasks to include the required calibration services, calibration schedule, maintenance, and maintenance records. Work shall also include maintaining a current list of instrumentation and identify the required calibration services and calibration schedule for each item, coordination of repairs of instrumentation in accordance with the manufacturer's recommendations and applicable regulatory requirements.
- d. The Contractor shall be prepared with supplies to perform occupational sampling/surveys, and maintenance of adequate supplies of laboratory consumables, sampling media and calibration gasses.

3.5.3.2 On a case-by-case basis:

- a. The contractor may be called upon to, perform comprehensive Industrial Hygiene and environmental sampling, maintain chain of custody, engage appropriate laboratories, and interpret and document the results after developing a sampling strategy.
 - i. If sampling requiring more than direct reading instruments must be used, and physical sampling or personnel dosimetry is required, a sampling plan must be developed and agreed to by NASA prior to commencement of work. Estimated costs and timeframes must be included in the plan.
 - ii. The NASA SOH office has a small cache of direct reading industrial hygiene equipment to perform basic indoor air quality surveys. If an identified issue or hazard requires additional sampling or monitoring equipment, then the contractor will have to provide it.
 - iii. Comply with the references listed in this requirement or more stringent/latest approved edition or version. Laboratory shall follow:
 1. US OSHA Standards for both General and Construction Industry
 2. OSHA Technical Manual, TED 1-0.15A, 20 Jan 1999 or latest edition
 3. The Noise Manual, 2000, American Industrial Hygiene Association
 4. Lead Management and OSHA Compliance for Indoor Shooting Ranges, 2005, OSHA Alliance Cooperative Program
 5. Workplace Ergonomics Reference Guide, DoD Computer/Electronics Accommodations Program
 6. American National Standards Institute (ANSI)/Compressed Gas Association (CGA) Commodity Specification for Air, G-7.1-1989
 7. American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc., Standard 62.1-2004, Ventilation for Acceptable Indoor Air Quality
 8. American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc., Standard 55-2004, Thermal Environmental Conditions for Human Occupancy
 9. American National Standards Institute, Inc., Z385.1-2004, Emergency Eyewash and Shower Equipment
 10. American National Standards Institute, Inc., Z9.5-1992, American National Standard for Laboratory Ventilation
 11. American National Standards Institute, Inc., Z9.3-1994, American National Standard for Exhaust Systems – Spray Finishing Operations – Safety Code for Design, Construction, and Ventilation
 12. Industrial Ventilation, A Manual of Recommended Practices, 25th Edition or latest edition, American Conference of Governmental Industrial Hygienists
 13. Threshold Limit Values for Chemical Substances, Physical Agents, and Biological Exposure Indices, latest edition, American Conference of Governmental Industrial Hygienists
 - iv. Provide a Chain of Custody Record (applies to all samples collected and analyzed under this contract)
 1. The possession or custody of samples must be traceable from the time they are obtained until the time the data is submitted to the laboratory.

2. The sample container(s) shall be secured to prevent tampering, or be placed in a designated, secured area, or
3. The sample is in actual physical possession of the sampler.

3.5.4 General Safety and Health Program Requirements

- a. Preparing reports, presentations, briefings, corrective action plans etc, as needed.
- b. Preparing safety awareness and safety and health related outreach materials, on keeping the NASA HQ Safety & Health webpage up to date and accurate.
- c. Managing the Collateral Duty Safety Representative (CDSR) program.
 - i. Collateral Duty Safety Representatives (CDSR) shall:
 - ii. Complete CDSR training.
 - iii. Serve as the point of contact for all safety and health activities within their organization and maintain close liaison with NASA HQ SOH.
 - iv. Accompany NASA HQ SOH survey team during annual safety and health inspections.
 - v. Provide access to all work areas under the control of their organization during safety and health inspections.
 - vi. Work with their organization's management to see to the timely resolution of all safety and health hazards communicated by NASA HQ SOH.
 - vii. Assist supervisors in conducting periodic safety and health meetings, training, and briefings for personnel.
 - viii. Immediately notify NASA TM when organization personnel are involved in any mishap or close call and assist the supervisor and NASA HQ SOH with subsequent investigations.
 - ix. Assist supervisors in documenting mishaps through the use of [NASA Form 1627](#), NASA Mishap Report or NMIS.
 - x. Encourage organization employees to report unsafe conditions to their supervisor.
 - xi. Distribute safety posters, literature, and other education or promotional safety materials.
- d. Provide input to the TM on the annual OSHA report and other reports, as requested.
- e. Provide safety and health support for the Occupant Emergency Plan and to the Emergency Management Team (EMT);
- f. Participate in task related meetings and other activities.
- g. Serve on the Interim Response Team for Headquarters mishaps and close calls.
- h. Emergency preparedness: The contractor's obligation may include resolution of unusual or emergency situations. The contractor may be required to provide safety and health technical services to NASA, but in currently unidentified ways, in preparation for, or in response to emergencies. Obligations under this requirement shall only arise when one or more of the criteria at [FAR18.001](#), enabling NASA to utilize "Emergency Acquisition Flexibilities" are met. If the emergency preparedness and response requirements result in changes to the contract, all contract adjustments will be processed in accordance with the Changes clause of the contract.

3.5.5 Documentation, References, and Records Management

- a. The Contractor shall maintain accurate and complete records of Government business in accordance with the latest editions of [NPD 1440.6, NASA Records Management Program](#) and [NPR 1441.1, “NASA Records Management Program Requirements”](#). This includes legacy Federal records (data created for Government use and delivered to or falling under the legal control of the Government) inherited from previous contracts and Government-owned, contractor-held electronic and vital records. Records of Government business shall be segregated from Contractor-owned records and from non-record materials.
- b. The Contractor shall:
 - i. Operate and maintain an electronic archive of all reports, surveys, analysis, inspections, and other contract activities conducted on behalf of the Government.
 - ii. Maintain internal document records of all administrative and operational procedures such as, but not limited to: reports for activities performed for the government, such as but not limited to: records of exposure monitoring/reports, contract employee certification and training, any safety or industrial hygiene inspection/survey/reports, and other auditable activities.
 - iii. Maintain a records management program to include a file plan and annual report that will be provided to the TM. The records management program will be submitted to the TM within the first 90-days of the contract for approval.
 - iv. Provide the Government access to Government records in accordance with 48 CFR Subpart 4.7.
 - v. Deliver Government-owned data to NASA or its designees, including successor contractors, at the completion or termination of this contract.
 - vi. Prevent the unauthorized destruction of records and do not dispose of records without the prior written consent of the TM
 - vii. Supporting the OMB’s initiative to go paperless and NASA’s Digital Transformation effort, work with the TM to identify/implement digitization opportunities/strategies within the records management program to improve record compliance, reduce time-consuming tasks around records storage & retention, and help reduce the cost of compliance.

3.5.6 Performance Metrics:

- a. Provide comments, markups, recommendations, updates, etc. within the timeline prescribed by the requestor or within 15 working days of notification to review (internal requestor) for minimum of 90% of requests.
- b. Provide weekly status reports on SH&E inspections, and S & H activities.
- c. Annual review and update the NASA HQ Baseline Safety and Occupational Health Assessment.
- d. Provide the TM monthly statistical data on mishaps and close calls no later than the 15th of each month.
- e. Annual training schedule provided.
- f. Equipment calibration performed in accordance with manufacturer recommendations.
- g. Written programs updated per documentation schedule.
- h. OSHA exposure assessment reports disseminated in accordance with the applicable standard.
- i. Required NASA training completed by required due date.
- j. Required records, as identified in the records management program, are updated within ten (10) days of being generated.
- k. Required training achieved vs the required allotted time, as identified in the Experience

section.

3.5.7 Experience

- a. The industrial hygienist shall have a degree in industrial hygiene/environmental health or related field, completed appropriate training and have at least two years of recent industrial hygiene experience including indoor air quality assessments, performing ergonomic assessments and have good oral and written communication skills.
- b. Safety services shall be provided by a qualified safety professional with a degree in Safety or related field, a minimum of 2-5 years of work experience in Safety, the ability to apply and interpret Federal OSHA regulations and other standards (e.g. Building Code, National Electric Code, National Fire Protection Association), and have good oral and written communication skills.
- c. Upon hire into this assignment, the Contracting personnel shall successively complete:
 - i. The following NASA courses within six (6) months of hire:
 1. Overview of MISHAP Investigations ([Course SMA-002-07](#))
 2. MISHAP Investigation Roles and Responsibilities ([Course SMA-002-08](#))
 3. Completing the Investigation and MISHAP Report ([Course SMA-002-09](#))
 4. Introduction to Root Cause Analysis ([Course SMA-002-10](#))
 5. Introduction to Human Factors in MISHAP and Close-Call Investigation ([Course SMA-001-07](#))
 6. This deliverable can be modified and/or waived with concurrence by the TM. The course content will be delivered using the [System for Administration, Training, and Educational Resources for NASA \(SATERN\) Learning Management System](#).
 - ii. FEMA National Incident Management Series (NASA SATERN Course [SMA-OS-EXTW-290](#)) to be successfully completed within the first 6-months of hire. Note, if the Contractor already has proof of successfully passing the [FEMA National Incident Management Courses: 100, 200, 700 & 800](#), this deliverable can be waived with concurrence by the TM. The course content will be delivered using the System for Administration, Training, and Educational Resources for NASA (SATERN) Learning Management System.
 - iii. The Safety and Mission Assurance Technical Excellence Program (STEP), Step level 1 technical training curriculum to be successfully completed within the first year of hire. This deliverable can be waived with concurrence by the TM. The course content will be delivered using the System for Administration, Training, and Educational Resources for NASA (SATERN) Learning Management System.

3.5.8 Task Conditions:

- a. The contractor shall furnish the necessary personnel and services to provide, on a five-day per week basis, a comprehensive Occupational Health and Safety Program for NASA Headquarters located at 300 E. Street, S.W, Washington, D.C.
- b. For routine services, the contractor will provide 1 Work Year Equivalent (WYE) industrial hygienist and 1 WYE Safety Specialist on-site (at NASA Headquarters) 5 days per week (exclusive of official Government holidays and when the building is officially closed) Monday through Friday, from 8:00 a.m. to 4:30 p.m. each day. Both the industrial hygienist and safety

specialist will work under the technical direction of a SHeMA-3 off-site Certified Industrial Hygienist (CIH) or Certified Safety Professional (CSP), or equivalent, as applicable.

- c. The CIH will be available on an as-needed basis for emergency situations. For non-routine services and emergencies, the CIH will be available for consultation and guidance to the IH, either through voice or video call. On-site response may be provided by a CIH on a case-by-case basis, within 8 hours of notification. Sample collection, laboratory analysis, if needed, and report preparation must be included in the routine, non-routine and emergency services provided. Routine reports must be provided within 5 working days, unless specified by the COR or TR. Non-routine or special reports/studies must be provided within the due date specified by the COR or TR.
- d. Contractor personnel working full time at NASA Headquarters will be provided a dedicated workspace, a computer, a monitor, access to printer/network, and general office supplies. At the discretion of the COR, contractor may be provided government cell phones or other communication devices to support mission and safety health objectives and requirements.

4. Contract Administration and Business Management

- a. The Contractor shall provide effective and efficient business processes, and administrative and technical program management for effective direction and control of this contract.
- b. The Contractor shall provide and use management information systems, which monitor and measure performance, and allow for the planning, scheduling, organizing, controlling, and reporting of all activities required by the J.1 Statement of Work and the contract.
- c. These systems shall be utilized to ensure accomplishment of program technical and schedule requirements, and cost objectives. At a minimum, the Contractor shall:
 - i. Develop and implement effective, efficient, and responsive management process and systems.
 - ii. Institute and maintain effective oversight of all contract activities.
 - iii. Ensure effective integration of administrative, business, and technical functions.
 - iv. Develop and implement effective management approaches to identifying, analyzing, tracking, and mitigating contract related risks associated with:
 - 1. Contract transition/phase-in.
 - 2. Contract administration.
 - 3. Technical performance.
 - v. Develop annual staffing plans vs. projected workloads.
 - vi. Develop and implement an effective management approach for estimating, projecting, controlling, and reporting contract costs.
 - vii. Develop and implement an effective management approach for communicating and documenting contract activity.
 - viii. Develop and implement an effective management approach for initially staffing and maintaining contract required staffing.
 - ix. Develop and implement an effective management approach for scheduling, monitoring, and overall contract and task performance.
 - x. Develop and implement an effective management approach for

monitoring Government Furnished Property.

5. Communications

The Contractor's team shall initiate and maintain regular and effective written and oral communications with the CO and COR to discuss a wide range of contract performance issues including, but not limited to: process improvements, risks and related issues, corrective actions, recovery plans, and other details of contract operations (Base and IDIQ). The Contractor shall, at the Government's request, document in writing the decisions made during these communications.

6. Innovation Plan

Within 60 days of contract award, an approved Innovation Plan shall become a part of the contract. Revised/updated Innovation plans shall be required on an annual basis. The plan shall recommend alternatives to the established procedures and/or organizational support of the contract with the intended impact of reduced costs and/or greater efficiencies in performance of the contract requirements. The plan shall include technical and cost information sufficient to enable the CO to evaluate the feasibility and impacts. The Contractor shall propose changes in other activities that impact performance on its contract, including Government and other Contractor operations, if such changes will optimize cost savings. Innovation Plan review meetings will be held to encourage collaboration with the Contractor, CO and COR to implement any approved innovation approaches. The final approval for any approach lies with the CO.

7. Regulatory Changes

Changes in regulations and regulatory requirements may change requirements in tasks. The Contractor shall work with the NASA CO and COR to adjust for any such changes.

8. Prioritization of Work

Due to scheduling needs, the Contractor may have multiple task orders and/or task order proposal requests under way simultaneously. Under such conditions, the Contractor shall complete all orders within the schedule allowed. The Government reserves the right to divert the Contractor to work on task orders of higher priority. In such cases, time extensions shall be granted, via a modification to the task order, for completion of task orders that have been delayed because of Government actions. The time extension shall be at no added cost to the Government.

9. General Administrative Requirements

9.1 Staff Training and Certifications

The J.1 Statement of Work requires, in all areas of performance, the appropriate level of

formal education, experience, certification, current mandatory training, and a detailed knowledge of applicable Federal statutes, executive orders, and federal regulations, as well as state and local statutes and regulations. In addition, a thorough awareness of all relevant NASA and GRC policies and procedural manuals is required. See applicable and reference material in the J.1 Statement of Work.

9.2 Base Effort and IDIQ Technical Representatives

The GRC COR will assign Technical Representatives (TRs) for Sections 3, 4, and 5 of J.1 Statement of Work.

9.3 Special Projects/Tasks

These tasks may include any or all items mentioned in J.1 Statement of Work that shall be of a temporary nature. They may include tasks performed at GRC or at another NASA Center, HQ, another Federal Agency, or at Contractor's location. Tasks shall be numbered in sequential order in accordance with the NASA FAR Supplement. Special tasks shall be issued by the CO. These tasks shall be issued in accordance with the Task Ordering Procedure (NFS 1852.216-80) (OCT 1996). In addition, any scope covered or mentioned in the J.1 Statement of Work shall also apply as scope for Special Projects/Tasks. A TR may be appointed to specific tasks by the COR.

9.4 Deliverables

The Contractor shall prepare and deliver the following as required below. Monthly Reports shall be submitted on or before 15 calendar days of the subsequent month (unless otherwise specified).

The table in section 7.4.7 summarizes all technical reports specified in the J.1 Statement of Work. **Unless otherwise specified in the contract, all reports to the COR and CO shall be submitted as follows: an electronic copy sent via encrypted email.**

9.4.1 Weekly Progress Report

The Contractor shall submit informal progress reports for the individual awarded task orders, and the status of all base effort.

9.4.2 Monthly Technical Activity Report

The Contractor shall include a summary of technical activity, including significant progress, status of milestones, accomplishments, problems (i.e., major issues, schedule impacts, etc.), and future plans. These reports shall be submitted in electronic form to the COR for review and comment by NASA.

9.4.3 Task Order Status Report

Within 10 working days after the close of the Contractor’s accounting month, the Contractor shall submit a Task Order Status Report for open tasks containing, at a minimum, the following by task:

- a. Task name
- b. Actions taken during the month.
- c. Planned actions.
- d. Problems encountered.
- e. Summary of tasks completed and pending.

9.4.4 Contractor Financial Management Reports

The Contractor shall prepare and distribute NASA Form 533M entitled “Monthly Contractor Financial Management Report” and the NASA Form 533Q “Quarterly Contractor Financial Management Report” in accordance with the instructions set forth on the reverse side of the form and in the NASA Handbook “Procedures for Contractor Reporting of Correlated Cost and Performance Data” (NPR 9501.2, Current Revision is Rev E). A Contract Baseline shall be provided within thirty (30) days of the contract effective date. The Contractor shall provide a completed Excel schedule GRC 533 Baseline to the Contracting Officer (CO) and Contracting Officer’s Representative (COR), specifying each required reporting category as budgeted on a month-by-month basis for the duration of the work effort (Optional work efforts shall be separately summarized and Fiscal Years shall be subtotaled).

9.4.5 Financial Status

Within 60 working days after contract completion, the Contractor shall submit for the contracting officer’s approval a Final Financial Status Report in the same format as a Form 533M. All figures reported are the actual and final figures.

9.4.6 Organizational Conflicts of Interest (OCI)

The Contractor shall submit an OCI Avoidance plan to the CO for approval within 30 days of contract award pursuant to NFS 1852.209-71 Limitation of Future Contracting, NFS 1852.237-72 Access to Sensitive Information, and NFS 1852.237- 73 Release of Sensitive Information.

9.4.7 Reports and Deliverables Table

The table below summarizes all technical reports specified in the J.1 Statement of Work.

Title	Frequency	SOW Reference	Recipient	Format
Weekly Progress Reports	Weekly as required by individual task orders and base work	7.4.1	COR/TRs	See 7.4
Monthly Technical Activity Report	Monthly	7.4.2	COR/TRs and CO	See 7.4
Contractor Financial Management (533) Reports	Monthly	7.4.4	CO, COR, Cost Accountant	See 7.4,
Contract Baseline	One-time Due within 30 days of contract award	7.4.4	CO, COR, Cost Accountant	See 7.4 Hard Copy Required
Financial Status	One-time Due within 20 operating days of final contract completion	7.4.5	CO, COR, Cost Accountant	See 7.4, Hard Copy Required for Cost Accountant
Innovation Plan	Once annually	6.2	CO/COR	See 7.4
Organizational Conflict of Interest Avoidance Plan	One time, due within 30 days after contract award	7.4.6	CO/COR	See 7.4
Industrial hygiene sampling reports	Intermittent, upon request	5.0	COR/TRs	Per technical direction
Health physics decommissioning plans	Intermittent, upon request	5.0	COR/TRs	Per technical direction
Audit reports	Intermittent, upon request	3.0, 4.0, 5.0	COR/TRs	Per technical direction

Chemical sampling and analysis reports	Intermittent, upon request	5.0	COR/TRs	Per technical direction
Safety Engineering Analysis	Intermittent, upon request	3.0, 4.0, 5.0	COR/TRs	Per technical direction
Safety Regulatory/Program Reviews	Intermittent, upon request	3.0, 4.0, 5.0	COR/TRs	Per technical direction
Facilities Safety Assessments	Intermittent, upon request	4.0, 5.0	COR/TRs	Per technical direction
Facilities Safety, Construction, and Health Inspection Reports	Intermittent, upon request	4.0, 5.0	COR/TRs	Per technical direction

10. Appendix A: Acronyms

Acronyms

The following is a list of acronyms used in J.1 Statement of Work.

AED	Automatic Electronic Defibrillator
AHJ	Authority Having Jurisdiction
ALERT	Acute Launch Emergency Reliability Tip
AOA	Annual Operating Agreement
CAPA	Corrective and Preventive Action System
Certrak	Certification Tracking System
CFR	Code of Federal Regulations
CIL	Critical Items List
CO	Contracting Officer
COOP	Center Continuity of Operations
COR	Contracting Officer's Representative
CRM	Continuous Risk Management
CSWG	Computer Safety Working Group
CWI	Certified Welding Inspector
EHRS	Electronic Health Records System
ERT	Emergency Response Team
ESO	Explosive Safety Officer
FAR	Federal Acquisition Regulation
FMEA	Failure Modes and Effects Analysis
FTA	Fault Tree Analyses
GIDEP	Government-Industry Data Exchange Program
GLP	Glenn Lower-Level Procedure or Manual
GLPR	Glenn Procedural Requirements
GOHPM	Glenn Occupational Health Programs Manual
GRC	Glenn Research Center (Includes Lewis Field and Plum Brook Station)
GSM	Glenn Safety Manual
HASP	Health and Safety Plan
HDBK	NASA Handbook
HQ	NASA Headquarters
IA	Independent Assessment
ICS	Incident Command System
IH	Industrial Hygiene
IMTE	Instruments, Measurements, and Test Equipment
IRT	Interim Response Team
ISS	International Space Station
LDE	Lifting Devices and Equipment
LDEM	Lifting Device and Equipment Manager
LF	Lewis Field
LLIS	Lessons Learned Information System
M&P	Materials and Processes
MAPTIS	Materials and Processes Technical Information System
MRB	Material Review Board
MTBF	Mean Time Between Failures
NASA	National Aeronautics and Space Administration
NDE	Nondestructive Evaluation
NDT	Nondestructive Testing

NMIS	NASA Mishap Information System
NPD	NASA Procedural Document
NPR	NASA Procedural Requirement
NRC	Nuclear Regulatory Commission
OCHMO	Office of Chief Health & Medical Officer
OSHA	Occupational Safety and Health Administration
OSMA	NASA's Office of Safety and Mission Assurance
PBS	Plum Brook Station
PPE	Personal Protective Equipment
PPQA	Products and Processes Quality Assurance
PQA	Procurement Quality Assurance
PQASP	Program/Project Quality Assurance Surveillance Plans
PRA	Probabilistic Risk Assessment
QA	Quality Assurance
QMS	Quality Management System
R&M	Reliability & Maintainability
RAM	Reliability, Accessibility, and Maintainability
RBAM	Risk-Based Acquisition Management
RCA	Root Cause Analysis
RGE	Radiation-Generating Equipment
RID	Review Item Discrepancy
RMIT	Risk Management Implementation Tool
S&MA	Safety and Mission Assurance
SA	Software Assurance
SAPE	Software Assurance Planning and Execution tool
SAR	Space Assurance Requirements
SARP	Software Assurance Research Program
SASS	Software Assurance and Software Safety
SHeD	Safety and Health Division
SHetrak	Safety, Health, and Environmental Tracking System
SMAD	Safety and Mission Assurance Directorate
SOW	Statement of Work
WBS	Work Breakdown Structure

11. Appendix B: Applicable Documents

11.1 NASA Glenn Directives

<https://www.grc.nasa.gov/grcdirectives/>

NASA John Glenn Research Center

Glenn Directives Management

https://www1.grc.nasa.gov/wp-content/uploads/GLPR-1410.1F_wC1.pdf

11.2 GRC Program Manuals

The GRC Program Manuals are available on the web at the following address:

Glenn Safety Manual (GSM)

<https://www.grc.nasa.gov/smad-ext/wp-content/uploads/sites/82/gsm-manual.pdf>

Glenn Occupational Health Programs Manual (GOHPM)

<https://www.grc.nasa.gov/smad-ext/wp-content/uploads/sites/82/ohpm-manual.pdf>

Glenn Environmental Programs Manual

<https://www1.grc.nasa.gov/wp-content/uploads/EPM-TOC.pdf>

NASA Glenn Research Center Excavation Manual

<https://www1.grc.nasa.gov/wp-content/uploads/PS-01278-Excavation.pdf>

11.3 NASA Procedural Requirements (NPR):

1800.1 NASA Occupational Health Program Procedures

<https://nodis3.gsfc.nasa.gov/displayDir.cfm?t=NPR&c=1800&s=1D>

8715.1 NPR NASA Safety and Health Programs

<https://nodis3.gsfc.nasa.gov/displayDir.cfm?t=NPR&c=8715&s=1B>

Office of the Chief Health and Medical Officer, Employee Mental Health Resources
& Information/EAP

https://www.nasa.gov/offices/ochmo/divisions/health_medsys/eap_info.html

12. Appendix C: Reference Documents

The Contractor shall follow and incorporate all Federal Regulations and Laws, NASA Policy Directives (NPD), NASA Procedural Requirements (NPR), and GRC Procedural Requirements and Directives (GLPR and GLID) into all deliverables, as applicable. For the Safety and Occupational Health disciplines, these references are identified in the “reference section” of each chapter in the manuals identified in Appendix B of this document. Supplements or amendments to listed publications from any organizational level may be issued during the life of the contract. The Contractor shall follow all existing and new laws and regulations that are implemented during this contract.

12.1 Federal Regulations

Federal Regulation	United States Code (U.S.C.)
Occupational Safety and Health Act of 1970	
Government Organizations and Employers - Safety Programs	5 U.S.C. S 7902
Safe Drinking Water Act	42 U.S.C. 300f et seq.

12.2 Codes of Federal Regulations (CFR)

Code of Federal Regulations	Title
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 Employees OSHA
10 CFR 1-199	Energy, Chapter 1, Nuclear Regulatory Commission
14 CFR Part 1230	Protection of Human Subjects (a.k.a. Common Rule, applies to all research involving human subjects of human research)

12.3 Executive Orders (EO)

Executive Order number	Date	Title
12829	06 January 1993	NATIONAL INDUSTRIAL SECURITY PROGRAM
12196	26 February 1980	Occupational Safety and Health Programs for Federal Employees

13043	16 April 1997	Increasing Seat Belt Use in United States
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12.4 NASA Policy Directives (NPD)

NASA Policy Directive (NPD)	Title
8720.1	NASA Reliability and Maintainability (R&M) Program Policy
1800.2D	NASA Occupational Health Program
1850.1	NASA Quality Assurance of the NASA Medical Care
7100.8	NASA Protection of Human Research Subjects
7170.1	NASA Use of Human Research Genetic Testing

12.5 NASA Procedural Requirements (NPR)

NASA Procedural Requirements (NPR)	Title
7150.2	NASA Software Engineering Requirements
8000.4	Agency Risk Management Procedural Requirements
8553.1C	NASA's Environmental Management System (EMS) - https://nodis3.gsfc.nasa.gov/displayDir.cfm?t=NPR&c=8553&s=1C
8580.1A	Implementing the National Environmental Policy Act and Executive Order 12114 – https://nodis3.gsfc.nasa.gov/displayDir.cfm?t=NPR&c=8580&s=1A
8705.5	Probabilistic Risk Assessment (PRA) Procedures for NASA Programs and
8705.6	Safety and Mission Assurance Audits, Reviews, and Assessments
8715.1	NASA Safety and Health Programs
8715.3D	NASA General Safety Program Requirements - https://nodis3.gsfc.nasa.gov/displayDir.cfm?t=NPR&c=8715&s=3D
8715.3	NASA General Safety Program Requirements

8735.1	Procedures for Exchanging Parts, Materials, and Safety Problem Data Utilizing the Government-Industry Data Exchange Program and NASA Advisories
8621.1	NASA Procedural Requirements for Mishap and Close Call Reporting, Investigating, and Recordkeeping
8735.2	Hardware Quality Assurance Program Requirements for Programs and Projects
1800.1	NASA Occupational Health Program Procedure
9501.2	NASA Contractor Financial Management Reporting
8705.5	Technical Probabilistic Risk Assessment (PRA) Procedures for Safety and Mission Success for NASA Programs and Projects
7100.1	NASA Protection of Human Research Subjects

12.6 NASA Standards (STDs)

NASA Standards (NASA STDs)	Title
NASA-STD-6016	Standard Materials and Processes Requirements For Spacecraft
NASA-STD-8719.13	NASA Software Safety Standard
NASA-STD-8739.8	NASA Software Assurance Standard
NASA-STD-8739.6	Implementation Requirements for NASA Approved Workmanship Standards

12.7 GRC Procedural Requirements (GLPR)

GRC Procedurals Requirements (GLPR)	Title
1280.1	Glenn Research Center Quality Manual
7120.5.30	Space Assurance Requirements (and applicable documents listed within)

8553.1F	Environmental Management System
8700.4	Product Assurance
8730.6	Control of Inspection, Measuring, and Test Equipment
8739.1	Software Assurance
8715.1	GRC Safety and Health Management System

12.8 GRC Work Instructions, Handbooks, and Other Reference Documents

GRC Handbooks and Other Reference Documents	Title
EHRM-RMP-0001	Records Management Plan for the National Aeronautics and Space Administration (NASA), Office of the Chief Health and Medical Officer, Electronic Health Records System (EHRM) Project
Electronic Health Record System Update Memorandum (NASA Chief Health and Medical Officer dtd, August 17, 2017)	Memorandum dtd. August 17, 2017 from the NASA Chief Health and Medical Officer describing the path forward for EHRM deployment to significantly reduce errors and duplication in record management, improve clinical data capture, standardize clinical data-gathering practices, and industrial hygiene surveillances
Electronic Health Record System Update Memorandum (Office of Management and Budget M-19-21, dtd. June 28, 2019)	Memorandum dtd. June 28, 2019 from the Office of Management and Budget, describing transformational change to modernize Government. This memo is included as a reference to serve as a foundational document supporting the NASA EHRM deployment.
GLM-QE-8730.2	GRC Welding Manual
GLM-QS-1800.1	Occupational Health Programs Manual
GLM-FE-8500.1	Environmental Programs Manual
GLP-QS-8715.1	Safety Manual
GLP-Q-8710.1	Certification & Qualification of NDT Examination Personnel

GLP-QER-8720.1	Reliability, Availability, and Maintainability Assurance
GLP-QER-8730.4	Electrical, Electronic, and Electromechanical (EEE) Parts Assurance
GLWI-FE-8550.1A	Glenn Research Center Environmental Management System Internal Environmental Compliance Evaluations
GLWI-QEA-8735.1	Government-Industry Data Exchange Program (GIDEP) Implementation of NASA Procedural Requirement (NPR) 8735.1
GLWI-QER-8720.7	Glenn Work Instruction Probabilistic Risk Assessment
GLWI-QEA-8750.1	Software Assurance and Software Safety Implementation
GLWI-QEA-8750.7	Software Assurance: Process Audit
GLWI-QEA-8750.8	Software Assurance and Software Safety Planning
GLWI-QEA-8750.6	Software Assurance: Configuration Management Audits
NASA HDBK 8739.23	NASA Complex Electronics Handbook for Assurance Professionals
NASA-HDBK-4008	NASA Programmable Logic Devices Handbook
EEE-INST-002	Instructions for EEE Parts Selection, Screening, Qualification, and Derating
NAS-410	National Aerospace Standard
GLP-QS-1410.1	Creating and Revising Chapters for the GRC Safety and Occupational Health Programs Manuals
GLWI-QER-8720.7	Limited Scope Probabilistic Risk Assessment (PRA)
GLWI-QER-8730.6	Design for Ionizing Radiation
GLPD 1280.1	NASA Glenn Quality Management System Policy
NASA IRB SOPs	NASA Institutional Review Board (IRB) standard operating procedures (<i>for Investigators Proposing Human Research for Space Flight and Related Investigations</i>) https://irb.nasa.gov/Resources/#sop