

PART III – LIST OF DOCUMENTS, EXHIBITS, AND OTHER ATTACHMENTS

ATTACHMENT J-1

**PERFORMANCE WORK STATEMENT (PWS) AND
ACRONYMS AND DEFINITIONS**

Appendix A Additional Workload Data

Appendix B Indefinite-Delivery/Indefinite-Quantity (IDIQ) Direct/Indirect Rates and Profit/Fee Rates

Appendix C Acronyms & Definitions

**Synergy-Achieving Consolidated
Operations and Maintenance
(SACOM)**

**Performance Work Statement
(PWS)**

for

**NASA John C. Stennis Space Center
Mississippi
&
NASA Michoud Assembly Facility
Louisiana**

May 2014

**Synergy-Achieving Consolidated Operations and Maintenance
(SACOM)**

SCOPE

The Synergy-Achieving Consolidated Operations and Maintenance (SACOM) Contract is a mechanism for facility services at John C. Stennis Space Center (SSC), Mississippi and Marshall Space Flight Center's (MSFC) Michoud Assembly Facility (MAF), Louisiana. MAF is managed by and reports to MSFC; under SACOM, one Contractor will provide facility services to both locations, SSC and MAF. The Contractor shall manage and be responsible for providing all services, equipment and supplies, except as provided as Government Property, to implement the SACOM Performance Work Statement (PWS).

The SACOM PWS consists of Core Service Operations and Indefinite Delivery and Indefinite Quantity (IDIQ) requirements spread among the following work elements: Contract Management, Logistics, Safety, Health and Environmental, Engineering, Manufacturing Support Services and Test Operations, Site Services, Facility Operations and Maintenance Services.

NASA may issue IDIQ Task Orders under the SACOM Contract on behalf of Other Federal, State, and Commercial Tenants or non-Commercial Tenants.

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1.0 CONTRACT MANAGEMENT

A. Scope

Performance Work Statement (PWS) Section 1, Contract Management, identifies the overall management and business administrative duties that cannot be identified for the performance of a single PWS functional area, or are applicable to, or related to performance of all of the functional areas described in the PWS. This section contains the requirements for PWS Section 1. The Contractor ultimately has the responsibility to establish and maintain its contract management program, meet the requirements of this PWS, and to innovatively and effectively respond to dynamic institutional and direct mission support requirements, in a cost effective and customer oriented manner.

B. Definitions

Definitions for the entire PWS are located in Attachment J-1, *Appendix C, Acronyms and Definitions*. The latest edition of Merriam-Webster Dictionary will be used for defining words not specifically addressed.

C. Acronyms

Acronyms for the entire PWS are located in Attachment J-1, *Appendix C, Acronyms and Definitions*.

D. Limitations, Restrictions, and/or Special Conditions

1. Authority

The PWS describes several interfaces between the Contractor and the Government. However, nothing in the PWS is intended to supersede official channels of communication through the Contracting Officer (CO) and the Contracting Officer's Representative (COR). Only a CO has the authority to make any commitments or changes that affect price, quality, quantity, delivery, or in any way direct the Contractor or its subcontractors to operate in conflict with the contract terms and conditions.

2. Core Service Operations

Requirements listed in this PWS are considered Core Service Operations or "Core" with the exception of those elements identified as Indefinite Delivery Indefinite Quantity (IDIQ).

3. Indefinite Delivery Indefinite Quantity (IDIQ)

The Contractor shall be responsible for providing IDIQ services to support NASA programs, projects, and tenants within any functional area of the PWS. Services provided in support of IDIQ only work will also be provided on an IDIQ basis, and are not

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included in the Core, unless specifically stated otherwise. Requirements considered IDIQ will be issued in accordance with contract Clause H.7, *Task Ordering Procedure* (NFS 1852.216-80.) They include, but are not limited to:

- PWS Section 1.4, Business Development
- PWS Section 2.1.4, Marine Transportation, Handling and Maintenance
- PWS Section 4.1, Design Engineering >\$50K
- PWS Section 4.3, Technology Development
- PWS Section 4.4, Construction Support
- PWS Section 4.5, Testing Services and Support
- PWS Section 4.6.2, Operations of Shared Manufacturing Areas/Resources
- PWS Section 5.5.5, Catering
- PWS Section 5.5.7, NASA Visitor's Center
- PWS Section 5.6, Education Services
- PWS Section 6.2, Maintenance (Corrective Maintenance) >\$50K
- Programs/Projects/Tenant Requirements > \$5K

Support to initiate IDIQ work, which includes, but is not limited to, business and technical management, shall be Core and fall within PWS Section 1. Cost of IDIQ support shall be spread among all SACOM customers.

4. Directives

It is the Contractor's responsibility to remain cognizant of and compliant with the most current version of applicable Federal, state, and local laws and regulations, Presidential Executive Orders, NASA Policy Directives (NPD), NASA Procedural Requirements (NPR), SSC, MAF, and MSFC's Policy Directives, Procedural Requirements, Work Instructions (WI), Permits, and Attachment J of this PWS. When two or more documents apply to the same requirement, Contractor personnel shall comply with the more stringent of the documents. If there is a conflicting requirement, the Contractor shall contact the COR for clarification.

The most current versions of NPDs and NPRs can be found in the NASA Online Directives Information System at:

http://nodis3.gsfc.nasa.gov/Rpt_current_directives.cfm

The most recent version of SSC's SPDs and SPRs can be found in the following Directives Management System at: http://nodis3.gsfc.nasa.gov/SSC_list.cfm

The most recent version of MSFC's MPDs and MPRs can be found in the following Directives Management System at:

https://dml.msfc.nasa.gov/directives/component/main?_dmfClientId=1378760668236

Other related documents can be found in Attachment J-10, *Reference Library*.

5. Deliverable Reports Documentation (DRD)

Deliverable Reports Documentation includes automated completed reports and documentation required by all PWS sections. DRDs shall be submitted into the Government provided Contract Deliverable System (CDS) by the dates identified in each DRD. The Contractor shall deliver data that is fully readable without additional software and in a format acceptable to the Government.

6. Hours of Operation

Normal business hours for SSC and MAF are 7:00 AM to 3:30 PM, Monday through Friday, except Federal holidays. NASA requirements will dictate the Contractor's work hours and if applicable may include 24-hour, 7 day per week operations.

7. Interface with the Government, Tenants, and Other Contractors

The Contractor shall schedule and arrange work to cause the least interference with the normal occurrence of Government or tenant business and missions. Where interference is unavoidable, the Contractor shall make every effort to minimize the impact of the interference and its effects. The Contractor shall be aware of ongoing operations, production, manufacturing and propulsion testing, as well as planned outages that may impact scheduling. The Contractor shall participate in meetings/teleconferences on a routine basis regarding ongoing activities.

The Contractor shall reschedule any work the CO/COR deems necessary to avoid unacceptable disruption to Government and/or tenant business. Rescheduling under these conditions shall be at no additional cost to the Government, unless approved by the CO. The Contractor shall maintain documentation of approval of work rescheduling from the customer and provide to CO and/or COR upon request.

8. Security Clearances

Secret clearances will be required to gain access to some locations where work is to be performed.

9. Access

Due to additional restrictions for access control in the SSC Test Complex Area and/or the MAF Manufacturing Facility, the Contractor shall complete additional training as necessary to obtain access to restricted areas. See NASA SOI-8080-0040 (*Test Area Access Control*) and SOI-8080-0029 (*Contractor Interface/Access*).

Daily access to perform work may be restricted during testing or manufacturing operations; therefore, the Contractor is expected to be aware of test and special manufacturing schedules and shall be flexible to reassign workers to alternate work tasks when access is denied. At **MAF**, the Contractor is responsible for obtaining permission

for access in manufacturing areas from the appropriate supervisor responsible for that particular area.

At both sites, various Tenant and Program related facilities/areas require prior approval before initiating work. It is the Contractor's responsibility to schedule and receive approval from the Tenant/Program representative prior to initiating such work.

1.1 Contract Administration

A. Scope

Section 1.1, *Contract Administration* identifies the overall contract administrative duties that are applicable to, or related to, performance of all functional areas described in the PWS.

B. General Requirements

The Contractor shall provide all contract administration functions to ensure all PWS requirements are accomplished. General administration requirements include, but are not limited to, the following:

1. Contractor Vehicles

Use of Contractor and Contractor employee vehicles at NASA facilities shall be subject to appropriate state regulations and Center vehicle policy and procedures. Roadworthy vehicles must be insured, state registered, and licensed. All Contractor and subcontractor employees shall hold a valid state driver's license and any other licenses that may be required to operate Government and/or Contractor vehicles and equipment.

2. Logos and NASA Communication Standards

The Contractor shall use the NASA emblems (i.e., NASA seal, NASA insignia, NASA logotype, NASA Program identifiers, and the NASA flag) in all exhibits, materials, and publications in accordance with 14 CFR Section 1221.1, *Use of NASA Name and Logo*, and other resident agency logos and insignia in accordance with applicable policy and regulations.

In accordance with NPD 2521.1, *Communications and Material Review*, all NASA-funded internal and external communications material, and/or use of NASA emblems, shall be submitted for review and approval to the SSC or MAF/MSFC Office of Communications.

3. Replacement, Modernization, and Renovation

During the term of the contract, the Government may replace, renovate, or improve equipment, systems, facilities, components, and fixtures at the Government's expense. All replaced, improved, updated, modernized, or renovated equipment, facilities,

components, and systems shall be maintained, operated, and/or repaired by the Contractor within the scope of the contract unless such changes result in an increase in requirements; at which time, the Contractor shall notify the CO.

1.1.1 Management

A. Scope

The Contractor shall provide all contract, business and technical management functions to plan, organize, implement, control, track, report, and deliver all requirements within the scope of the SACOM Contract as described in this PWS for NASA, tenant or resident agencies, and commercial customers. Technical and Business Management (Sections 1.2 and 1.3) functions necessary for IDIQ requirements are also included as part of the Core Service Operations.

B. General Requirements

General management requirements shall include, but are not limited to, the following:

1. Designated one single point of contact for all contract operations. This individual shall have the autonomy needed to successfully bind the Contractor and act as primary interface between the Contractor and the CO/COR. Subcontractors and/or teaming arrangements shall integrate the management structure with the Contractor's management structure. The Contractor shall also be responsible for comprehensive subcontract management.
2. Perform technical, business, and safety functions to plan, implement, track, report, and deliver the required products and services described in the PWS and contract.
3. Complete requirements of this contract so work performed satisfies the following: Fully meets the performance objective of the contract, is performed within the schedule, is accomplished within the cost estimate and is accomplished in a safe, professional, and high quality manner.
4. Apprise the CO and COR immediately of any issues that could have an adverse impact on successful performance of the contract requirements.
5. Provide financial data and other related business information only to the CO, COR, or designated representative as requested in support of planning, formulation, execution, reporting, budget calls, incremental funding actions, and other requests for contract financial information. Other requests may entail, but are not limited to, cost estimates and analysis; basis of estimate detail; cost breakdowns per project, task, PWS, and building location or site. Information shall be accurately presented in a format that is understandable by the requester and submitted by the requested date.
6. Continue to examine requirements with a goal to reduce operational costs by:

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- a. Performing cost-trade analyses on proposed improvements.
 - b. Identifying, recommending, and implementing improvements/innovations in coordination with the COR.
 - c. Recommending new or changing requirements based on a cost avoidance trade-off.
 - d. Providing continual improvements that offer efficiencies.
7. Assure the proper handling of sensitive and proprietary data to include but not limited to Government or third party data access, use, disclosure, reproduction, transmission, storage, and disposal activities.
 8. Establish and sustain effective relations with labor unions while using prudent business practices to ensure best value to NASA.
 9. Develop and execute an effective management approach to ensure a strong technical foundation and an organizational structure that stresses the flexibility and adaptability necessary to respond to dynamic requirements.
 10. Develop and execute a management approach that results in employees' work areas being safe, clean and orderly.
 11. Stennis Space Center has been established as an OSHA-recognized Voluntary Protection Program (VPP) Star Site. At **SSC**, the Contractor shall provide a Safety Program that is certified by OSHA Voluntary Protection Program (VPP) within eighteen (18) months after contract start. At **MAF**, the Contractor shall provide a Safety Program that incorporates the OSHA VPP requirements within eighteen (18) months after contract start.
 12. The Contractor shall obtain certification in ANSI/ISO/ASQ Q9001:2008 within eighteen (18) months of contract start.
 13. Develop and execute a management approach that ensures Contractor personnel conduct themselves in a proper, courteous, and business-like manner. Contractor personnel shall wear attire, which is neat, clean, and suited to the work or situation being performed such as personal protective equipment (PPE). Contractor personnel working in food service, custodial service, and employees working at the visitor's center shall be uniformed and identifiable. Contractor personnel who interact with others concerning safety or emergency activities shall be able to communicate verbally in the English language.
 14. **SSC Only:** Facility Manager Program (FMP) – The Contractor shall administer the FMP in accordance with SCWI-8830-0001, *Facility Manager Program Handbook*. The program helps to ensure a safe, healthy, and efficient workplace for all NASA SSC building occupants and provides for centralized reporting of facility issues.

15. Ensure requested support and information is provided during internal and external audits and investigations performed by Government agencies or other authorized entities.
16. Work collaboratively with other NASA contractors in residence to ensure timely and effective execution of requirements. The Contractor shall develop overarching Associate Contractor Agreements (ACA's) in accordance with Section H.12, to facilitate integrated working relationships. The Contractor shall work cooperatively with other non-NASA onsite user(s)/tenant(s) to ensure timely support of their requirements.
17. Provide instructions via customer interface (web-based, publication, etc.) for customers to request services, request direct buy items, and provide customer service feedback to the Contractor.

C. Reporting Requirements

The Contractor shall develop, maintain, and ensure the following deliverables are accurate and timely as defined in the specific DRD(s) listed below:

DRD PC01-1.1	<i>Liability and/or Litigation Report</i>
DRD PC02-1.1	<i>Certificate of Insurance Report</i>
DRD PC03-1.1	<i>Advance Notification of Workforce Reductions</i>
DRD PC04-1.1	<i>Management Plan and Labor Relations Plan</i>
DRD PC05-1.1	<i>Staffing Plan</i>
DRD PC06-1.1	<i>Organizational Conflict of Interest Mitigation Plan</i>
DRD PC07-1.1	<i>Monthly Management Status Review</i>
DRD PC08-1.1	<i>Data Deviation Request</i>
DRD PC09-1.1	<i>Patent Application Notice</i>
DRD PC10-1.1	<i>Patent, Copyright, and Infringement Report</i>
DRD PC17-1.1	<i>Reportable Metrics</i>
DRD PC18-1.1	<i>Strike Plan</i>
DRD FA04-1.1	<i>Facility Manager Plan (SSC Only)</i>
DRD MA05-1.1	<i>List of Owners, Officers, Directors, and Executive Personnel</i>
DRD MA08-1.1	<i>SACOM Contractor Space Utilization</i>

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
1.1.1 Management			
Compliance	The Contractor shall ensure contract compliance with Public Laws, Executive Orders, NPD, NPR, PWS, FAR, NFS, Center policy directives, Center procedural requirements, work instructions, permits, contract clauses and approved plans.	N/A	No violations or non-compliances of Public Laws, Executive Orders, NPD, NPR, PWS, FAR, NFS, Center policy directives, Center procedural

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
			requirements, work instructions, permits, contract clauses, and approved plans.
Data Requirements (DR)	The Contractor shall ensure that DRs are submitted accurately and timely.	See Attachment J-2	No instances of late submittal without prior approval by the Contracting Officer.
Facility Manager Program and Plan	The Contractor shall: <ol style="list-style-type: none"> 1. Provide an FMP Plan 2. Oversee and coordinate the FMP for SSC 3. Update and maintain: <ol style="list-style-type: none"> a. A current list of designated Facility Managers and Area Managers b. The FMP web page c. The FMP Handbook 	155 SACOM-assigned facilities	In accordance with DRD FA04-1.1 and SCWI-8830-0001. Updates are made within 30 calendar days of any changes.

NOTE: All workload data in the PWS tables are a combination of SSC and MAF and are annual requirements unless otherwise identified.

1.1.2 Documentation and Records Management

A. Scope

The Contractor shall provide a comprehensive records and files management program that will provide for the appropriate filing, storage, retrieval, and disposition of all records. A documentation plan for operation of the program shall be developed by the Contractor and submitted to the Government as specified in DRD DM01-1.1, *Records Master List/Files Index*. The plan shall comply with established records management regulations and guidelines.

B. General Requirements

The Contractor shall follow records management rules in accordance with NASA standards listed in this section.

All logs, records, files, databases, and workload data identified in the PWS shall be maintained and updated throughout the life of the Contract and as otherwise required by law, regulatory authority, or policy. Records shall be available for review by the CO, designated technical representative, and auditors. Upon termination of the Contract, all NASA owned, Contractor held records shall be turned over to the Government in a format to be determined by the CO. A

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Records Master List/Files Index shall be developed and maintained by the Contractor as required in DRD DM01-1.1. Records shall be maintained in accordance with regulations and guidelines.

Documentation, which includes, but is not limited to, plans, manuals, reports, drawings, and procedures conforming to NASA standards, shall be maintained, archived and stored in the repository appropriate to the type of documentation as described below.

In accordance with the respective Centers' policy documents (SPR 1400.1, *Document Preparation, Numbering, and Management Guidelines and Standards* and MPR 1440.2, *MSFC Records Management Program*), repositories will include the appropriate NASA electronic documentation systems, including but not limited to: NASA Technical Documentation System (TechDoc), MSFC Integrated Document Library (MIDL), Design and Data Management System (DDMS), SSC Records Archive, and the Contract Deliverable System (CDS). Documents containing detailed facilities and facilities maintenance and operations related information such as engineering drawings, schematics, specifications, reports, and cost estimates shall be stored in the respective Center's repository system.

The Contractor shall utilize existing documentation to the maximum extent possible. The Contractor shall develop necessary documentation including, but not limited to, operating plans and procedures, maintenance and operating instructions, and other types of work instructions. The Contractor shall officially record and house all procedures and documentation in the appropriate NASA System in accordance with SPR 1440.1, *SSC Records Management Program* and MPR 1440.2 and provide a complete index of Contractor procedures. Documentation and the document index shall be developed, managed, and maintained in accordance with NASA Standards listed in this section.

The Contractor shall manage and maintain records created for Government use or falling under the legal control of the Government, as well as new operational records and provide the Government or authorizing representatives access when requested. The Contractor shall utilize the Government provided databases to manage the Government records and provide as requested.

Procedures governing the retention, retirement, and destruction of official NASA records are specified in NPR 1441.1, *NASA Records Retention Schedules* (NRRS). NPR 1441.1 has been correlated to the NASA Agency Filing Scheme (AFS), which is contained in Appendix D of the NPR, and to the General Records Schedules (GRS) produced by the National Archives and Records Administration (NARA). NPR 1441.1 is available electronically from the NASA Online Directives Information System (NODIS).

The Contractor shall manage NASA-owned/contractor-held records in accordance with Agency Policies:

- NPD 1440.6, *NASA Records Management*
- NPR 1441.1, *NASA Records Retention Schedules*
- MPR 1440.2, *MSFC Records Management Program*
- SPR 1440.1, *SSC Records Management Program*

- SPR 1400.1, *Document Preparation, Numbering, and Management Guidelines and Standards*
- Title 36 of the *Code of Federal Regulations*, Chapter XII, *National Archives and Records Management*
- STD-2822, *Still and Motion Imagery Metadata Standard*

The Contractor shall provide the Government or authorized representatives access to all records. All records shall contain supporting documentation to provide a complete audit trail. The Government reserves the right to inspect, audit and copy all records.

C. Reporting Requirements

The Contractor shall develop, maintain, and ensure the following deliverables are accurate and timely as defined in the specific DRD(s) listed below:

DRD DM01-1.1 *Records Master List/Files Index*

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
1.1.2 Documentation & Records Management			
Documentation	The Contractor shall satisfy reporting requirements to allow reporting to the Government by (1) maintaining documentation with respect to all financial operations and (2) developing and maintaining a comprehensive records and files management program. Provide all documentation (i.e., DRs, financial information) in accordance with requirements.	N/A	No instance of late and/or inaccurate reports; or documentation not in accordance with requirements.

1.1.3 Information Technology (IT)

A. Scope

The Government will provide to the Contractor computers, telecommunications, network connectivity, and related services required in the performance of services covered by this Contract. All requests shall be submitted to the respective Center’s Office of the Chief Information Officer (OCIO) for guidance and approval. At SSC, the Contractor shall use SPD 2800.1, *Provision of Institutionally Funded IT Resources and Services* for guidance. The Government will not provide computer services required for the Contractor’s internal operations such as corporate accounting or other Contract accounting. Development, implementation, maintenance, and use of equipment, supplies, hardware, and software systems shall be in compliance with NASA Information Technology policies.

B. General Requirements

The Contractor shall adhere to all Agency and Center IT policies and procedures and any approved modifications to these policies and procedures to include:

- NPD 2540.1, *Personal Use of Government Office Equipment Including Information Technology*
- NPD 2800.1, *Managing Information Technology*
- NPR 2800.1, *Managing Information Technology*
- MPD 2800.1, *Management of Information Technology And Services At MSFC*
- SPD 2800.1, *Provision of Institutionally Funded IT Resources And Services*
- NPR 2800.2, *Electronic and Information Technology Accessibility*
- SPD 2800.4, *Information Technology Project Management*
- NASA-STD-2804, *Minimum Interoperability Software Suite*
- NASA-STD-2805, *Minimum Hardware Configurations*
- NPD 2810.1, *NASA Information Security Policy*
- NPR 2810.1, *Security of Information Technology*
- SPD 2810.1, *Information Technology (IT) Network Security*
- NPR 2841.1, *Identity, Credential, and Access Management*
- NPR 7120.7, *NASA Information Technology and Institutional Infrastructure Program and Project Management Requirements*
- NPR 7150.2, *NASA Software Engineering Requirements*

1. IT Security

The Contractor shall ensure that its employees, in performance of the Contract, complete annual NASA IT security training by the designated due date. The Contractor shall use System for Administration, Training, and Educational Resources for NASA (SATERN) or the current NASA training system to meet this requirement. The Contractor shall ensure its employees adhere to NASA IT Security policies, procedures, computer ethics, and best practices.

Security of SACOM IT resources (including personnel) shall be in adherence to NASA Agency and the respective Center's IT Security standards as outlined in NPR 2810.1, SPD 2810.1 and MPD 2800.1. The Contractor shall implement and provide an *Information Security Management Plan* as specified in DRD MA01-1.1 for all personnel and Contractor owned, maintained, or operated IT components.

NASA IT security personnel will have the authority to conduct security reviews at all Contractor locations that possess or use NASA data, or that operate, use, or have access to NASA information systems. NASA data is defined as any data which is collected, generated, maintained, or controlled on behalf of NASA. This includes any methods used in the generation of said data. There should be no expectation of privacy when utilizing the Centers' networks. These responsibilities shall extend to equipment that is acquired by the Contractor in support of the performance of the contract. All computer systems operated by the Contractor in the performance of this contract shall have virus protection

and regular vulnerability scanning utilizing the Agency or Center identified tools. IT security vulnerabilities shall be appropriately identified and remediated. IT security incidents shall be reported in accordance with NPR 2810.1 and all applicable Center policies and procedures. The Contractor shall assist the Government in maintaining a level of security that minimizes the threat of unauthorized access to IT resources and the destruction of NASA data.

2. Communications Systems

Handheld ultra-high frequency (UHF) radio, desktop telephone and mobile telephone communication capabilities will be provided to the Contractor by the Government to support SACOM tasks. The type and quantity of equipment is determined by the OCIO. The Government will provide encrypted radios for required functions. Any new systems requiring use of radio frequencies must be authorized by the SSC or MSFC Spectrum Manager depending on the Center where the equipment will be used.

3. Desktop and Mobile Computer Hardware/Software

The Government will provide appropriate hardware and software as specified in NASA's Basic Interoperability Standards: NASA-STD-2805 and NASA-STD-2804. The SACOM Contractor shall provide access to Government provided IT resources as needed for repair, inventory control, and/or configuration management.

4. Applications/ Software Support

The Contractor shall utilize software systems as defined in Attachment J-9, *Government Provided IT Systems and Software*, in performance of this Contract. DRD MA02-1.1 will require the Contractor to submit an annual update to this software listing. The NASA Information Technology Support (ITS) contractor will provide development, modification, installation, IT security, and database management support for all NASA mandated software as designated in J-9. All SACOM software and IT system configuration changes and upgrades shall be approved by the appropriate Government Configuration Control Board (CCB) prior to implementation. The Contractor shall utilize SACOM software identified as "mandatory" in the J-9 attachment. For software in J-9 identified as "non-mandatory", the Contractor has the option to:

- a. Use existing software
- b. Propose alternate solution(s)
- c. Discontinue use of this software

NASA reserves the right to modify, add or replace any applications designated as "use mandated by NASA." The successful bidder shall be required to use the modified or new application.

5. Hosting/ System Administration

Hosting and system administration responsibilities are based on the following categorizations:

a. NASA Data

NASA data is defined as any data which is collected, generated, maintained, or controlled on behalf of NASA. This includes any methods used in the generation of said data. Any system, database, spreadsheet, or other file that contains NASA data must reside in a NASA data center. The Government may define additional systems in the future as required. Any new systems or integration of existing systems shall reside in the Stennis Data Center (SDC).

Hosting and system administration support for NASA facility/institutional support systems will be provided by a third party, NASA contractor. SACOM system administration support for non-facility/institutional support systems is specified elsewhere in this document.

The Government may at any time access systems and review any information contained therein. NASA data, including all changes made under this contract, is Government property and is for the exclusive use of the Government. This data may not be transferred to another location, in any form, without the written consent of the Government. This data may not be used by the Contractor for any purpose other than work required in the performance of this Contract.

b. Corporate Data

The Contractor is required to furnish all hardware and software necessary to meet contract requirements that are not provided by the Government such as: human resources, corporate purchasing, corporate accounting, or other contract accounting functions necessary to execute the scope of the SACOM contract. The Contractor is not permitted to operate systems on a NASA network that are not required to execute the scope of the SACOM contract. The Contractor shall be responsible for ensuring that corporate systems residing on a NASA network comply with all NASA IT security policies and are covered under an IT System Security Plan. The Contractor is responsible for the administration and management of corporate systems.

6. MAF Only

The Contractor shall maintain, implement, execute and manage all machine controlled, tooling, engineering specific, and machine operated software. This includes documentation, execution, and maintenance of software processes. The Contractor shall ensure software acquisitions or developments of this meet NASA's criteria per NPR

7150.2. This includes, but is not limited to, being capitalized per policy as well as safety-critical software having a software safety plan.

The Contractor shall ensure that when a Commercial Off-The-Shelf (COTS) or open source software component is to be acquired or used, the following conditions are satisfied:

- a. The requirements that are to be met by the software component are identified.
- b. The software component includes documentation to fulfill its intended purpose (e.g., usage instructions).
- c. Proprietary, usage, ownership, warranty, licensing rights, and transfer rights have been addressed.
- d. Future support for the software product is planned.
- e. The software component is verified and validated to the same level of confidence as would be required of the developed software component.

C. Reporting Requirements

The Contractor shall develop, maintain, and ensure the following deliverables are accurate and timely as defined in the specific DRD(s) listed below:

DRD MA01-1.1	<i>Information Security Management Plan</i>
DRD MA02-1.1	<i>SACOM Systems Inventory</i>

1.1.4 Emergency Management

NOTE: Post disaster activities related to removing debris or facility modifications shall be authorized on an IDIQ basis.

A. Scope

Emergency Management includes all activities related to creating and implementing an emergency management program comprised of actions required prior to and during a disaster. This includes, but is not limited to, providing personnel for preparation activities during the emergency event (i.e., sandbagging, hardening facilities, etc.).

B. General Requirements

The Contractor shall provide and maintain services to support NASA Emergency Management Preparedness at MAF and SSC.

The Contractor's obligation shall include resolution of unusual or emergency situations. The

Contractor shall be required to assist NASA, within the general scope of work, in preparation for or in response to emergencies. Obligations under this requirement shall only arise when one or more of the criteria in FAR 18.001 are met, enabling NASA to utilize “Emergency Acquisition Flexibilities.” If the CO determines that the emergency preparedness and response requirements result in changes to the contract, all contract adjustments will be processed in accordance with the Changes clause in Section I of this contract.

1. Emergency Preparedness

- a. The Contractor shall designate a single point of contact that supports SSC and MAF in all emergency preparedness planning and implementation as well as interface with the SSC and MAF NASA Emergency Director/Managers or other appointed officials.
- b. The Contractor shall provide a response capability that can communicate and support any declared emergency, Presidential Declaration of Disaster or an Incident of National Significance in accordance with NPR 8715.2A, *NASA Procedural Requirements Emergency Preparedness*.
- c. The Contractor shall participate in the operational process verification reviews of existing plans to ensure the Emergency Management Plans (EMP) (SSC SPLN-1040-006, *Emergency Preparedness Plan*; MAF IMSC-Plan-003, *Emergency Management Plan*); and any other emergency plans adequately address evacuations, sheltering, post-disaster response and recovery, deployment of resources, interoperable communications, and warning systems.

2. Emergency Operations

The Contractor shall provide Emergency Operations Center (EOC) support in accordance with EMP guidelines when major occurrences are anticipated such as hurricanes, interagency emergency operations, and other emergency responses where an intra- or interagency response is required.

The Contractor shall support recovery operations to include physical inspection of buildings, structures, systems, and equipment on an IDIQ basis after a major occurrence has occurred.

The Contractor shall conduct emergency operations (whether NASA direct or interagency under a plan or mutual aid agreement) consistent with the incident command structure identified in EMPs and Continuity of Operations Plans (COOPs) SPLN-1040-0006, *SSC EMP*, SPLN-1040-0005, *SSC COOP*, IMSC-Plan-003, *MAF EMP*, and AS60-OI-012, *MAF COOP*.

3. Continuity of Operations

When the Contractor is providing support in a post emergency timeframe, the activities related to the emergency shall be authorized on an IDIQ basis. All other Continuity of

Operations activities will be considered Core Service Operations.

The Contractor shall provide and maintain services to support both SSC and MAF Continuity of Operations in accordance with SPLN-1040-0005 (*SSC COOP*) and AS60-OI-012 (*MAF COOP*).

The Contractor shall:

- a. Support the development and implementation of an appropriate COOP at the locations identified in the COOPs.
- b. Provide a high level of readiness that in the event of a declared emergency that can accomplish the following:
 - 1) Implementation with and without warning.
 - 2) Achieving operational status within four (4) hours of activations.
 - 3) Maintaining sustained mission essential operations for a minimum of thirty (30) calendar days.
 - 4) Utilizing existing and available field infrastructure where practical.
 - 5) Assuring the continued operation of identified mission essential infrastructure and operations.

4. Test, Training, & Exercise (TT&E)

- a. SSC Only Requirements

The Contractor shall:

- 1) Develop, maintain, and administer a comprehensive TT&E Program in accordance with SPLN-1040-0006, *Emergency Management Plan*, NPD 8710.1, *Emergency Management Program* and other requirements as outlined in National Incident Management System (NIMS), Federal Continuity Directives 1&2 and the Homeland Security, Exercise and Evaluation Program (HSEEP).
- 2) Develop, administer, and provide input of lessons learned and corrective actions program consistent with SPLN-1040-0006, to redress shortfalls and weaknesses.
- 3) Update the TT&E Program annually and incorporate NASA-approved lessons learned and corrective actions into the updated plan.

- b. MAF Only Requirements

The Contractor shall:

- 1) Support the current TT&E Program in accordance with IMSC-PLAN-003.
- 2) Provide lessons learned and corrective actions on an annual basis.

c. SSC and MAF Requirements

The Contractor shall:

- 1) Participate in annual exercises to demonstrate the capability to:
 - a) Execute emergency response plans using first response force and
 - b) Mobilize a deliberate and pre-planned movement to activate and stand up the EOC (all hands) at SSC, MAF, or an alternate facility (with only the COOP NASA Management and the Contractor Support Team)
- 2) Support and participate in biennial Agency national level exercise programs designed to evaluate Agency capabilities to execute emergency operating plans.
- 3) Provide documentation of EMP and COOP activities such as training, response to emergencies, and accidents/incidents requiring emergency response.

C. Reporting Requirements

The Contractor shall develop, maintain, and ensure the following deliverables are accurate and timely as defined in the specific DRD(s) listed below:

DRD GA09-1.1 *Activity/Response Report*

DRD GA10-1.1 *Emergency Management Plans and Continuity of Operations Implementation Plan*

DRD GA11-1.1 *Test, Training, & Exercise (TT&E)*

1.1.5 Staffing and Training

A. Scope

The Contractor shall provide training and development to maintain core competencies, enhance performance, and advance capabilities to meet contract requirements. The Contractor shall also develop testing associated with training courses that require testing. The Contractor shall ensure applicable training is compliant with all sections of the PWS. The Contractor shall also provide training to NASA, NASA contractors, users/tenants, and visitors (as required).

B. General Requirements

The Contractor shall, in addition to the training and development to maintain core competencies, develop and provide training as determined by the NASA Training Officer in common-use topics to all parties on site (to include NASA, NASA contractors, users/tenants, and visitors). The Contractor shall also develop testing associated with training courses that require testing. Examples of common-use training topics may include, but are not limited to, Facility Safety, Contractors Safety, Electrical Utilization System, New Employee Safety & Health Orientation, Electrical Safety Awareness, Ladder Safety, Office Ergonomics, Multi-gas

Detection Meter Awareness, Confined Space Entry, Scaffold Users, Lead Awareness, Forklift Operations, Personal Protection Equipment, Hazard Communication, HAZMAT, Hearing Conservation, Radiation Safety, Fire Watch/Fire Extinguisher, Lockout/Tagout, Personal Fall Arrest System, CPR/First Aid Training, Automated External Defibrillator (AED), Universal Waste Management, Annual Hazardous Waste to include the appropriate level of Department of Transportation training, and Foreign Object Debris training to include visitors requiring access to manufacturing areas. Upon request by the NASA Training Officer, the Contractor shall provide the common-use training to NASA to be included in the SATERN training system.

The Contractor shall use the NASA-provided automated system to record training provided and certifications issued for all employees including NASA, NASA contractors, and when applicable, users/tenants. The Contractor shall determine the frequency of training required to ensure personnel certifications and ensure recurrent training are kept current for employees. The training may consist of Government-furnished or Contractor-developed training materials; however, the training materials may be audited by the COR.

The Contractor shall establish, maintain, and document a certification program for operators of built-in cranes, monorails, hoists, and Special Purpose Mobile Equipment (SPME). The certification shall be based on successfully completed classroom instruction and testing, hands on training, and demonstrated proficiency. Training shall be provided by an independent third-party training Contractor. The certification program shall meet NASA-STD-8719.9 (*Standard for Lifting Devices and Equipment*), MWI-6430.1 (*Lifting Equipment and Operations*), and SSC SWI-8834-0001 (*Lifting Devices and Equipment Management Instructions, latest edition*), OSHA requirements and receive CO approval.

The Contractor shall manage, record, and track all certifications and training in the NASA-provided automated system. Certifications include, but are not limited to, hearing conservation, lead, asbestos, indoor air quality, and Non-Destructive Examination (NDE). Backup training data such as signed rosters shall be available for review upon NASA request.

Personnel who satisfy certification requirements shall be issued a certification card containing employee's name, company, skill certified in, and date of expiration. A current certification card shall be carried on the person performing the specific operation for which he/she is certified.

The Contractor shall utilize the Government provided travel service for all travel associated with the SACOM Contract.

C. Reporting Requirements

The Contractor shall develop, maintain, and ensure the following deliverables are accurate and timely as defined in the specific DRD(s) listed below:

DRD MA04-1.1 *Personnel Certification and Training Plan*

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD	PERFORMANCE STANDARD
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		DATA	
1.1.5 Staffing & Training			
Training Schedules	The Contractor shall develop monthly training course schedules based on the required frequency of training needed to ensure personnel certifications and recurrent training are kept current for NASA and NASA Contractors. The Contractor shall publish the schedule on each site’s internal website in advance.	No additional information	Training schedules for each month will be provided 2 months prior to the beginning of the training month.

1.2 Technical Management

A. Scope

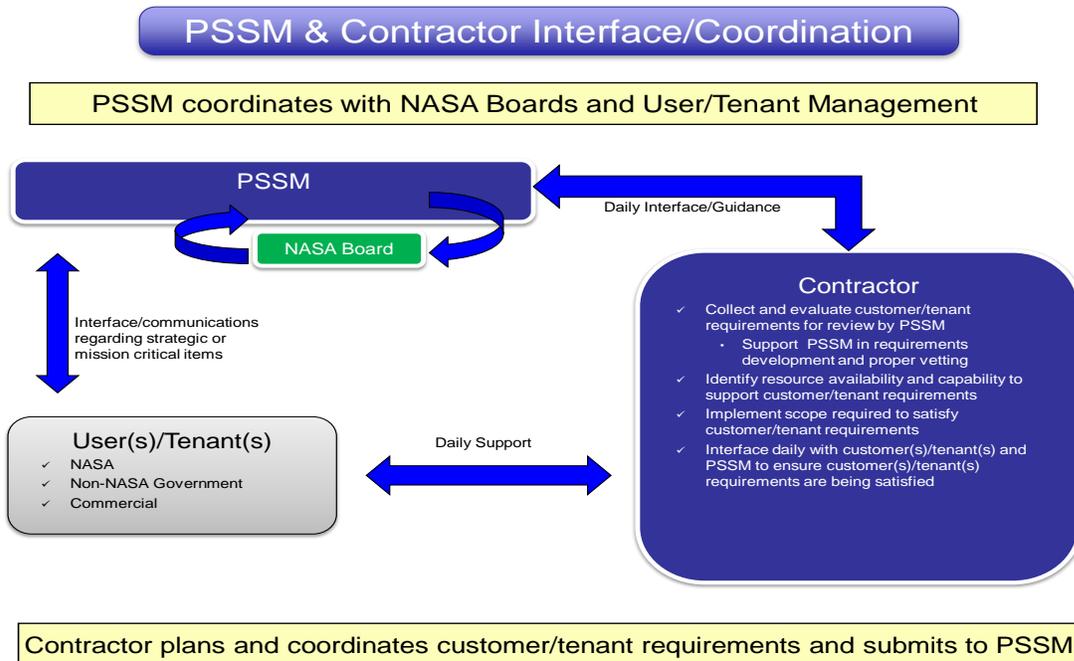
The Contractor shall provide technical management for the integration of PWS functions and activities.

B. General Requirements

The Contractor shall perform production support and task order formulation functions for all work within this contract to include all IDIQ task order work.

1.2.1 Production Support (MAF only)

The Contractor shall provide a single point of contact for MAF customers/tenants and interface between NASA Productions Support Systems Managers (PSSMs) and customers/tenants as described in the figure below. The Contractor shall collect, analyze, and coordinate all customer/tenant requirements (e.g. office space, production and facility requirements including requirements for shared capabilities) from inception to close-out. The Contractor shall, through this point of contact, ensure there are no impacts with other customers/tenants, as well as support and perform project formulation and cost estimating as described in the following sections of the PWS.



1.2.2 Task Order Formulation

Task order formulation represents minimum actions that must occur to support decision making prior to task implementation. A task order initiation activates project formulation. The Contractor shall provide formulation assistance prior to actual project implementation. The Contractor shall provide preliminary information during formulation that consists of the following:

1. Assist with refining requirements
2. Evaluating technical considerations including design
3. Preparing ROM estimates

NOTE: For initial IDIQ task order process cost estimation, the Contractor shall refer to Section H, Clause H.7 Task Order Procedures (NFS 1852.216-80)

4. Develop supporting documentation to include, but not limited to, presentation data, briefing charts, and/or risk-based analysis, etc. For Construction of Facilities (CoF) formulation, the documentation may include NASA Form 1509/1510 and Quad Charts.

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
1.2 Technical Management			

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
<p>1.2.1 Production Support (MAF only)</p>	<p>The Contractor shall support customers/tenants as single point interface.</p>	<p>Thirty (30) Customers</p>	<p>No instance of a validated customer complaint.</p>
<p>1.2.2 Formulation Tasks</p>	<p>The Contractor shall develop formulation information for task orders.</p>	<p>200 Formulations</p>	<p>No instance of inaccurate formulation information. No instance of late delivery.</p>

1.3 Business Management

The Contractor shall perform Resources and Financial Management, Work Control, and Scheduling for the integration of PWS functions and activities.

1.3.1 Resources and Financial Management

The Contractor shall employ sound financial management practices and systems while utilizing flexible and innovative procedures to the maximum extent practical to ensure compliance with Government cost charging and reporting requirements. The Contractor shall operate within the contract value and each individual Task Order Basis of Estimate amount. The Contractor shall be responsible for providing financial services that comply with the NASA financial systems’ requirements outlined below to satisfy applicable reporting requirements.

The Contractor’s system shall provide financial reports to comply with NASA’s financial reporting requirements. Cost shall be distributed based on the functional definition specified in the latest version of *NPR 9501.2, NASA Contractor Financial Management Reporting (MF01-1.3, Financial Management Report (533M))*. The Contractor shall provide a monthly accrual based on these reporting requirements. The accrual calendar shall coincide with the Contractor’s fiscal month calendar and will be accepted as the NASA monthly accounting calendar for accrual purposes. The NASA Office of the Chief Financial Officer must approve the accrual method including any changes. The Contractor’s system shall provide cost by Customer Code, PWS and Center (MAF or SSC) by Core and individual Task Orders. The Contractor’s system shall provide workforce data by work year equivalent and hours at the same level as cost is reported. The detailed cost shall be provided monthly for inclusion in NASA’s financial systems in an electronic flat file format (reference MF02-1.3, *Financial Management Report Detail (electronic 533M)*).

The Contractor shall conduct a monthly financial resources review (reference PC07-1.1, *Monthly Management Status Review*) as directed by the CO to provide insight into financial performance

and utilization of resources.

These reviews shall include, but are not limited to, the following data:

1. Government Fiscal Year (GFY) phased financial plan – both rate and cumulative for Core and each IDIQ task requirement by Center, Customer Code, and PWS level 3 (level 2 when applicable). Firm Fixed Price elements can be reported at level 2.
2. Work Year Equivalent with associated hours by PWS for Core and each IDIQ task requirement;
3. Actual cost and Accrued cost for each plan provided in item (1.) above;
4. Projected GFY End-of-Year (EOY) estimate and Data Trending analysis;
5. Baseline adjustment analysis;
6. Variance analysis;
7. Contract Year comparison to GFY (Total Contract Level and by PWS); and
8. Contract Value Analysis and Trending.

The Contractor shall provide bi-annual reviews of the indirect cost structure including the basis of allocation.

The Contractor shall support requests for development of the Government fiscal financial operating budget and other special budget exercises as required.

The Contractor shall provide operations and maintenance cost by location or facility (real property identification number) and work type as defined in PWS Section 6.0. (reference DRD MF03-1.3, *Maintenance and Operations Cost by Facility Report*)

1.3.2 Work Control Management

A. Scope

The Contractor shall establish, implement, and utilize an integrated work control approach to create, schedule, approve, document, track, and monitor all Core and IDIQ requirements from inception to close-out.

B. General Requirements

1. Work Control

The Contractor shall:

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- a. Develop and maintain a work control process.
- b. Establish and promote a common method(s) of customer interface to serve as a help/service desk to initiate service requests, trouble call requests and other customer requests.
- c. Possess the ability to estimate value requested requirement, establish and utilize a control process for service request funding limitation notification to ensure customer funding is not exceeded for service request cost estimate or cost/cost(s).
- d. Plan and schedule requests to ensure resources are available to efficiently complete work requirements:
 - 1) Within the specified or negotiated time limits/schedule
 - 2) Within established performance standards
 - 3) With minimal disruptions to the customer(s)
- e. Develop, implement, and maintain operational procedures for the customer interface(s) to provide accurate, timely, professional responses to requests, and to permit tracking of work in progress.
- f. Utilize the Computerized Maintenance Management System (CMMS) to control, schedule, and monitor operations, maintenance, trouble calls, service requests, and all other operations and activities requested, as required in PWS Section 6.0.

NOTE: The Contractor shall utilize the Government-provided CMMS and Maximo to the maximum extent practicable when entering, managing, and tracking work requirements.
- g. Input Construction, Facility Maintenance, and Modernization Projects into the NASA provided Project Funding Priority System (PFPS) to be used as a basis for integrating the facility planning DRD submissions.
- h. Identify schedule conflicts and work with affected customers/tenants to identify alternatives and/or seek resolution. If schedule conflicts involve work to be performed for itself or its affiliate, and/or if resolution is not achieved, the Contractor shall notify the COR and/or the CO. For the purposes of this requirement, the term “affiliate” shall include, but not be limited to, all members of Joint Ventures and their respective affiliates.
- i. The Contractor shall schedule work for all customers in the order it is received. If a request for priority is made, the Contractor will assign priority unless a priority decision is required for work for itself or its affiliate. If a priority decision is required for work for itself or its affiliate, the Contractor shall elevate to the CO and COR for disposition. For the purposes of this requirement, the term “affiliate” shall

include, but not be limited to, all members of Joint Ventures and their respective affiliates.

- j. Provide notification of unscheduled site outages, failures, and/or anomalies to affected customers/tenants, respective NASA technical monitors, SSC Facility and Operations Managers, and MAF PSSM. Provide notification within fifteen (15) minutes of discovery of outage, failure and/or anomaly.
- k. Serve as central clearinghouse for dissemination of institutional related announcements and site outages, failures, and/or anomaly reporting on a 24 hours per day, 7 days per week basis to include communication to the workforce of any hazardous or anomalous conditions such as power outages, equipment failures, weather warnings, security issues, traffic accidents or road closures.
- l. Develop, maintain, and make accessible to customers/tenants a Customer Guide of services to describe the full range of capabilities and services offered by the Contractor. The Customer Guide shall include, but not limited to:
 - 1) service and system descriptions
 - 2) building descriptions and capabilities
 - 3) operating characteristics
 - 4) operator certifications
 - 5) method by which customer feedback is collected and assessed

2. Outages

The Contractor shall schedule, coordinate and perform outages for assigned Facilities, Systems, Equipment and Utilities (FSEU).

The Contractor shall:

- a. Provide expertise to analyze outage requests, assess associated impacts, and participate in outage planning meetings.
- b. Schedule and arrange work to cause the least interference with the normal occurrence of Government business and missions.
- c. When interference is unavoidable, make every effort to minimize the impact of the interference and its effects.
- d. Possess knowledge of all ongoing IDIQ task orders as well as planned outages that may impact task order schedules.
- e. Coordinate, negotiate, and manage approvals for outages.

C. Reporting Requirements

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The Contractor shall develop, maintain, and ensure the following deliverables are auditable and reconcilable to the Contractor’s financial management systems:

- DRD MF01-1.3 *Financial Management Report (533M)*
- DRD MF02-1.3 *Financial Management Report Detail (electronic 533M)*
- DRD MF03-1.3 *Maintenance and Operations Cost by Facility Report*
- DRD MF04-1.3 *Service Request Funds Notification Balance-Customer Summary*

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
1.3.2 Work Control Management			
Customer Guide	Develop and update a customer guide of SACOM Services to be used by customers.	One (1) Guide	Guide is easily accessible by all customers.
Work Document Coding	Ensure the correct code is utilized per work document (e.g. request, order).	30,000 work orders	No instance of inaccurate code structure on work document.
Work Scheduling	Schedule and arrange work so as to cause no interference with the normal occurrence of Government business and missions.	Daily	No interferences for normal scheduled work.
Outage Notifications	a. Provide notifications of scheduled and unscheduled site outages, failures, and/or anomalies. b. Maintain a current, updated contact list(s) necessary to ensure proper notifications of outages, failures, and/or anomalies.	a. 1,500 b. 400 updates	Provide notification within fifteen (15) minutes of discovery of outage, failure and/or anomaly Eight (8) hours to update once notified of change

1.3.3 Acquisition Management

A. Scope

Acquisition Management includes all services associated with procuring supplies, services, and materials and exercising a subcontracting management program.

B. General Requirements

The Contractor shall acquire supplies, services, and subcontracts in support of NASA, resident agencies, and commercial tenants adhering to the requirements identified in the FAR and NFS. The Contractor shall also procure all supplies and materials required for establishment and

replenishment of store stock and inventory items, as well as direct buys.

The Contractor shall manage and provide a sound subcontracting management program that supports NASA's commitment to providing maximum practicable opportunities to Small, Small Disadvantaged (SDB), Woman-owned (WOSB), Veteran-Owned (VOSB), Service Disabled Veteran Owned (SD-VOSB), and Historically Underutilized Business Zone (HUB Zone) businesses. The Contractor shall provide effective, customer-focused subcontract management that result in consistently high quality products, services, and deliverables.

The Contractor shall provide overall management, technical control, and accountability of all subcontracts or other agreements that may be utilized to fulfill contract requirements. The Contractor shall perform market surveys in accordance with FAR 7.102 and FAR 6.303.2(b)(8).

The Contractor shall develop and execute documentation to support the procurement of services, supplies, materials, and equipment (to which the Government retains title). This includes, but is not limited to, consumables, store stock, parts, spares, equipment buys, service leases, rental agreements, maintenance agreements, and critical material and equipment to meet short suspense or the emergency needs of the Government.

The Contractor shall review System for Award Management (SAM) for exclusions prior to award. In no instance shall a vendor identified on the excluded parties list be awarded any type of award.

The Contractor shall promote competition to the maximum extent practicable by soliciting at least three (3) offerors for all material, equipment and service acquisitions, above the FAR specified micro-purchase threshold and operate in accordance with its DCMA-approved accounting practices. For all acquisitions estimated to cost less than the micro-purchase threshold, the Contractor shall obtain a "fair and reasonable" price and seek competition where feasible.

The Contractor shall submit all direct buy requests over \$25,000 and subcontract approvals over \$100,000 to the CO for review and approval. This request will include the purchase description, PR number, estimated value, suggested source, line items, and whether it will be purchased competitively or non-competitively. All purchases performed by the Contractor are subject to audit by the Government.

The Contractor shall coordinate with the site specific NASA CIO for purchase requests related to IT elements or implications. All IT acquisitions shall comply with Section 508 of the Rehabilitation Act, Section 516 of the Consolidated and Further Continuing Appropriations Act, 2013, Public Law 113-6, enacted March 26, 2013, and Section 515 of the Consolidated Appropriations Act of 2014, Public Law 113-76, enacted January 7, 2014, as applicable.

The Contractor shall verify that funds are available for purchases. In no instance shall a PR be processed without sufficient funds.

The requirement shall not be split into smaller purchases to fall within a lower dollar level so as

to avoid FAR and/or Competition in Contracting Act (CICA) requirements.

The Contractor shall continually monitor, evaluate, and identify acquisition needs, including requests received for material, equipment, or services.

The Contractor shall establish a web-based system to allow customers to request direct buys. This system shall be operational no later than the last day of the phase-in period.

The Contractor shall establish a status and tracking system for all acquisitions. The system shall be maintained/ updated to include all delivery information and other administrative actions taken from receipt of all purchase requests through closeout of the acquisition document. The tracking system shall allow for customer accessibility. Documentation in the tracking system shall consist of assigned purchase request number, date of receipt, date of order, subcontract placed, order number, order delivery date and completion date, actual receipt date or completion date, actual delivery date to customer, vendor name and address, dollar amount, and assigned buyer.

The Contractor shall actively solicit products containing recovered material that are reasonably priced, available within a reasonable period of time, and meet the requirements identified by the Affirmative Procurement Program and Plan for Environmentally Preferable Products, NPR 8530.1.

The Contractor shall coordinate with customers to confirm requirements for any item with hazardous content, prior to ordering. The Contractor shall verify with the vendor that the material being ordered matches the Safety Data Sheet (SDS) information provided on the PR. Items must be an exact match to the manufacturer and item name. There shall be no instances of hazardous material purchased unless clearly identified by the MSDS number on the PR.

The Contractor shall participate in Small Business Outreach Activities such as, but not limited to, small business/industry conferences or industry trade shows annually. Activities may be onsite or offsite. The Contractor shall establish procedures to assist small businesses who inquire about becoming a vendor or subcontractor to support this contract.

Acquisition activity falls into one of the following categories: Level I, Level II, Level III, Level IV, and Level V, as described in the PRS table below.

C. Reporting Requirements

The Contractor shall develop, maintain, and ensure the following deliverables are accurate and timely as defined in the specific DRD(s) listed below:

DRD PC11-1.3	<i>Advance Subcontract Notification</i>
DRD PC12-1.3	<i>Davis-Bacon Violation Report</i>
DRD PC13-1.3	<i>Subcontract Reports</i>
DRD PC14-1.3	<i>Purchasing and Subcontracting Metrics</i>
DRD PC15-1.3	<i>Consent to Subcontract</i>
DRD PC16-1.3	<i>Contractor Purchasing Manual</i>

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
1.3.3 Acquisition Management			
Acquisition of Materials, Equipment, and Services	Levels of Acquisition:		
	- LEVEL I - Purchases less than or equal to \$2,500 (direct buys).	3,500	Order placed no later than three (3) workdays after receipt of completely documented request.
	- LEVEL II - Purchases greater than \$2,500 but less than or equal to \$25,000 (direct buys).	319	Order placed NLT five (5) workdays after receipt of completely documented request.
	- LEVEL III - Purchases greater than \$25,000 but less than or equal to \$50,000 (direct buys).	Eleven (11)	Order placed NLT ten (10) workdays after receipt of completely documented request.
	- LEVEL IV - Purchases greater than \$50,000 but less than or equal to \$100,000 (direct buys).	One (1)	Order placed NLT fourteen (14) workdays after receipt of completely documented request.
	- LEVEL V - Purchases greater than \$100,000 (direct buys).	One (1)	Order place NLT 30 workdays after receipt of completely documented request.
<p>NOTE: The workload is reflected in the number of individual transactions of “buys”. A transaction equates to a single purchase action of material/equipment to a single source (vendor) regardless of the number of line items on the order. Historically, purchase orders have averaged three (3) line items each.</p>			
Acquisition System Capable of Implementing	The Contractor shall establish and maintain an acquisition system and update tracking for all direct buy acquisitions. Customers must be able to	Nothing additional	Acquisition System in place NLT end of phase-in period and information

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PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
<p>Purchase Requests, and Tracking of Materials, Equipment, and Services</p>	<p>access the system for record status.</p> <p>The Contractor shall advise the Contracting Officer in writing of the procedures for tracking acquisitions.</p> <p>The Contractor shall follow-up with the vendor and customer on all delinquent orders within five (5) workdays for routine requests and one (1) workday for work stoppage requests.</p> <p>Tracking data will be available within two workdays after placing order or subcontract.</p> <p>The Contractor shall update status of all open orders (if applicable) within twenty-four (24) hours of a status change.</p> <p>The Contractor shall answer inquiries pertaining to direct buy acquisitions. Accurate responses shall be supplied the same day if received before 3:00 p.m. and by 9:00 a.m. the following business day for inquires received after 3:00 p.m.</p>		<p>provided is consistently accurate.</p> <p>Customers must be able to access acquisition system.</p>
<p>Expediting Direct Buy Items</p>	<p>“Expedited” means both processed immediately and requesting expedited shipping from vendor. The Contractor shall have the capability to expedite services for high priority requests.</p>	<p>Approx. 10% of total line items</p>	<p>Expedited items are processed immediately, shipped immediately.</p>
<p>Corrective Actions</p>	<p>The Contractor shall respond to corrective actions written by the Contractor’s Quality Assurance (QA) office and act as a liaison between QA and the vendor. Corrective actions are to be resolved within five (5) workdays from discovery.</p>	<p>75</p>	<p>Resolve within five (5) workdays from discovery unless approved by the COR.</p>
<p>Contractor Purchasing System</p>	<p>The Contractor shall establish and ensure continuous certification of a Government-approved, Government-accessible purchasing system that meets the requirements of the FAR and NFS.</p>	<p>One (1) system</p>	<p>Approved Purchasing System.</p> <p>No instances of lapsed certification</p>

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PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
	The cognizant Defense Contract Management Command Office (DCMAO) will receive a delegation of authority from the CO to conduct an initial Contractor Purchasing System Review with the first year of contract performance to determine adequacy of the Contractor's purchasing system.		thereafter.
Subcontract Management	The Contractor shall, to the maximum practicable extent, provide small business concerns and Small Disadvantaged Business (SDB), Service-Disabled Veteran-Owned Small Business (SDVOSB), Veteran-Owned Small Business (VOSB), Hub Zone, and Women-Owned Small Business concerns the opportunity to receive a fair portion of subcontract awards in accordance with the negotiated Subcontracting Plan.	Nothing Additional	Meet Small Business Subcontracting Plan requirement /goals. The Contractor shall report their subcontracting placements in accordance with DRD PC13-1.3.
	The Contractor shall manage and control all subcontractor and vendor activities necessary to accomplish requirements.	Nothing Additional	No evidence of issues in meeting requirements due to the Contractor's failure to appropriately manage subcontractor and vendor activities.
Davis-Bacon Act Work	All Davis-Bacon work over \$350,000 per project, including labor and materials, shall not be performed by prime contract employees except at the discretion of and specifically written direction by the CO/COR.	Sixty (60) projects	No instances of Prime Contractor employees performing construction work over \$350,000 per project unless approved in writing by CO/COR.
	For historical purposes only, in 2013, the prime contractor's Davis-Bacon construction subcontracts were as follows:		
	<p style="text-align: center;">SSC</p> <p>a. 3 per year <\$25,000</p> <p>b. 5 per year \$25,000 - \$50,000</p>	<p style="text-align: center;">MAF</p> <p>a. 8 per year <\$25,000</p> <p>b. 8 per year \$25,000 - \$50,000</p>	

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
	c. 7 per year \$50,000 - \$100,000 d. 13 per year >\$100,000	c. 12 per year \$50,000 - \$100,000 d. 31 per year >\$100,000	
Participate in Small Business Outreach Activities	The Contractor shall participate in small business outreach activities. Attendance at these activities shall be coordinated with the NASA/SSC Small Business Specialist. Activities may entail set up/tear down of company display/exhibit booth and have knowledgeable personnel staff the booth during the duration of the event.	Four (4) Events	Active participation within the dates and times specified. Booths staffed at all times.

1.4 Business Development (IDIQ Only)

The Contractor shall provide the following site development support:

Pursue new tenants by performing activities including, but not limited to, the following:

1. Publicize availability of underutilized structures for outgrant, as well as services available to MAF and SSC tenants.
2. Work with NASA to ensure pursuit of prospective tenants that are most desirable to NASA, including, Federal tenants.
3. Act as an initial point of contact for those interested in becoming SSC or MAF tenants.
4. Coordinate and facilitate site tours and meetings for prospective tenants.
5. Capture the status of prospects on an ongoing basis and communicate the information to NASA as identified in the task order.

The Contractor shall participate in planning efforts as related to critical enablers such as space consolidation and tenant ingress/egress, IT, pricing, energy conservation, and NASA infrastructure improvements.

The Contractor shall continue and expand on previous efforts to develop and update site development presentations, brochures, web pages including online virtual tools, and other collateral items focused on office space, manufacturing space, storage, and shared services such as the National Center for Advanced Manufacturing (NCAM). The Contractor shall identify new prospects through strategic participation in development opportunities such as conferences, organizations and events.

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The Contractor should engage and participate on wide ranging seminars and conventions with strong emphasis on aerospace and other compatible industries to meet NASA mission. Upcoming engagement and participation should be coordinated and approved by the COR/CO.

NASA will make all decisions regarding what prospects will become tenants. Under no circumstances should the Contractor state or imply that it has the authority to approve a prospect's tenancy, or to guarantee NASA approval.

The Contractor shall submit to NASA at least ten (10) prospective tenants with a total new revenue of at least \$1M per year.

2.0 LOGISTICS AND PROPERTY MANAGEMENT

A. Scope

Logistics and property management services outlined in this section include receiving operations, packaging and shipping operations, transportation, drayage, mail services, property management, redistribution, utilization and disposal, and supply and material management. Compliance with policies, requirements, and guidance in NASA NPDs, NPRs, and other applicable documents is mandatory. A centralized logistics base of operations shall reside at MAF to included but not limited to receiving, inspection, packaging, shipping, transportation, moving, hauling. Property management requirements are located at both sites. Though specific guidelines, regulations, and minimum performance standards have been established, the Contractor shall strive to be innovative and resourceful to achieve the desired synergy between MAF and SSC.

B. Limitations, Restrictions, and/or Special Conditions

1. The Contractor shall ensure personnel performing Marine Operations are licensed by the U.S. Coast Guard for inland Waterways of the United States for Uninspected Towing Vessels (minimum requirement) with Radar Endorsement.
2. The Contractor shall provide driver services and vehicle operations using Government-provided vehicles to ensure vehicle fleet management operations are provided safely, timely, effectively, and efficiently in accordance with NPR 6200.1, *Transportation and General Traffic Management*, NPD 6000.1, *Transportation Management*, and Executive Order 13423, *Strengthening Federal, Environmental, Energy and Transportation Management*.
3. The Contractor shall protect the integrity of the Government's interest and be accountable for NASA real & personal property and accurately report to the Center Supply and Equipment Management Office (SEMO) or designated Representative.
4. The Contractor shall comply with all applicable regulations, policies, and procedures including the GSA Federal Management Regulation, 41 CFR 101, *et seq*, all 4000 series NPRs/NPDs, and the documents listed below.
5. The Contractor shall utilize the NASA Property Disposal Management System (DSPL) for the disposal of all NASA and NASA-owned property.

C. References

- A560-OI-025, *Lost or Damaged Freight*
- MPR 1551.1, *Mail Management and Distribution*
- NASA-STD-8719.9, *Standard for Lifting Devices and Equipment*
- NPR 1440.6H, *NASA Records Retention Schedules*
- NASA NPD 1490.1, *NASA Printing, Duplicating, and Copying Management*
- NPD 4100.1, *Supply Support and Material Management Policy*

- NPR 4100.1, *NASA Materials Inventory Management Manual*
- NPD 4200.1, *Equipment Management*
- NPR 4200.1, *NASA Equipment Management Procedural Requirements*
- NPR 4200.2, *Equipment Management Manual for Property Custodians*
- NPD 4300.1, *NASA Personal Property Disposal Policy*
- NPR 4300.1, *NASA Personal Property Disposal Procedural Requirements*
- NPD 6000.1, *Transportation Management*
- NPR 6000.1, *Requirements for Packaging, Handling, and Transportation for Aeronautical and Space Systems, Equipment, and Associated Components*
- NPR 6200.1, *NASA Transportation and General Traffic Management*.
- NPR 7120.7, *NASA Information Technology and Institutional Infrastructure Program and Project Management Requirements*
- NPR 8800.15B, *Real Estate Management Program Management Requirements*
- NPR 8820.2F, *Facility Project Requirements*
- SCWI-5100-0001, *SSC Procedures for Initiating the Purchase of Supplies and Services*
- SCWI-8080-0001, *Propulsion Test Project Management*
- SOI-8080-0026, *Storage Control of Spares, Materials, and Program Support Equipment*
- SPLN-1200-0002, *SSC Technical Authority (TA) Implementation Plan*
- SPR1440.1, *SSC Records Management Program Requirements*
- SWI-8834-0001, *Lifting Devices and Equipment Management Instructions*
- *ASTM International, American Society for Testing and Materials Standards for Property Management Systems, <http://www.astm.org/Standard/index.shtml>.*
- *NASA Real Estate Desktop Guide*

2.1 Logistics

A. Scope

Logistics services outlined in this section include receiving operations, packaging and shipping operations, transportation, drayage, and mail services.

B. Reporting Requirements

The Contractor shall develop, maintain, and ensure the following deliverables are accurate and timely as defined in the specific DRD(s) listed below:

DRD LS01-2.1	<i>Packaging, Shipping, Receiving, and Inspection Logistics Plan</i>
DRD LS03-2.1	<i>Transportation, Moving, Hauling, and Mail Logistics Plan</i>
DRD LS04-2.1	<i>Vehicle Validation and Metrics Report</i>
DRD LS05-2.1	<i>Transportation Metrics Report</i>
DRD LS06-2.1	<i>Lifting Devices and Equipment Management Plan</i>

2.1.1 Receiving and Inspection

A. Scope

Receiving operations include a central receiving function at MAF responsible for the total processing and inspection of inbound shipments and subsequent delivery to the appropriate customers or to supply warehouse locations. The Contractor shall operate a centralized receiving function with qualified personnel that are knowledgeable in the receipt and inspection of inbound freight, certified in the proper use of forklifts and pallet jacks and certified to handle chemicals and other. The appropriate SEMO shall designate Contractor personnel as authorized receiving agents for the United States Government. The receiving function includes the identification of controlled equipment and subsequent tagging, processing of non-stock receipts for Center personnel, and replenishment of the supply warehouse. The Contractor shall enter the receipt for stock supply accurately in the Government provided inventory system and the transaction number will be annotated on the receiving or acquisition document for each item. Customer requested items shall be properly staged for pick-up from the Customer or delivery to the Customer within two workdays of receipt of request for pick-up or receipt of item to be delivered, unless marked expedited.

B. General Requirements

The Contractor shall provide a receiving and inspection function which includes, but is not limited to:

1. Receive all inbound freight shipments; perform initial receipt; and identify incoming material in accordance with DRD LS01-2.1.
2. The MAF or SSC Office of Safety and Mission Assurance shall approve all hazardous materials prior to receipt and in accordance with procedures established in accordance with NPR 1600.1, *NASA Security Program Procedural Requirements* and SPR 1600.1, *Security Requirements Handbook*.
3. Off-load radioactive materials at consignee area. The Contractor shall ensure Security officials are available to escort carrier to the final destination. The Contractor shall contact the Radiation Safety Officer (RSO), who will then notify the consignee of delivery. Material will be received in the receipt system upon official notification of receipt from the consignee.
4. Off-load Class A and B explosives at consignee area. The Contractor shall ensure Security officials are available to escort the carrier to the final destination. The Contractor shall contact the appropriate Center NASA Explosive Officer, who will then notify the consignee of delivery. Material will be received in the receipt system upon official notification of receipt from the consignee.

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5. Follow procedures established by USPS, SPR 1600.1, *Security Requirements Handbook*, and MPR 1551.1, *Mail Management and Distribution*, for handling any suspicious packages or mail.
6. Scan all suspicious packages with x-ray equipment and handle in accordance with the appropriate Center security policies.
7. All medical items/supplies shall be shipped directly to MAF and/or SSC Medical Clinic. The receipt of medical items or drugs shall be rigidly controlled.
8. Upon receipt of critical spare items, whether new or returned, receipt inspection shall comply with customer requirements as requested. Catalog specifications and NASA requirements must match to material being received.
9. Enter into the appropriate NASA database all receipts that are to replenish SACOM supply inventory or are direct delivery stock items to customers.
10. Deliver all items to the appropriate storage area as identified by the customer. The customer will be responsible for inspection and tracking of their item/hardware at their assigned storage location.
11. Receive, issue, manage, and inventory gas cylinders including propane, acetylene, etc. Track vendor-owned cylinders from time of receipt to the time of return to the vendor. Track Government-owned cylinders from time of receipt to the time of disposal or deletion from inventory. Ensure that all leased and owned cylinders are periodically tested for safety, in accordance with 49 CFR 178.35. Conduct a physical inventory of all cylinders at least once every three years as outlined in NPR 4100.1 *NASA Materials Inventory Management Manual*.

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
2.1.1 Receiving and Inspection			
Receive	Receive and track all inbound freight shipments consigned to Centers.	80160 Items Received	Shipments not properly consigned shall be refused. Appropriate paperwork shall accompany freight through receipt processing.
Plan	Provide a plan that addresses how to ensure a safe, efficient, effective receiving and inspection program.	One (1)	In accordance with DRD LS01-2.1.

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
Record	Record and track material returns.	1,000 Items	Record within one (1) workday of item return.
Critical Spare	Upon receipt of critical spare items, whether from new purchase or from turn-in, inspect each item to validate the identity and condition to ensure there has been no damage during shipment and to determine if test and certification is required.	20,000 Items Inspected	Quality inspection shall be performed, documented and corrective action initiated if needed within one (1) workday.
Receipt	Enter receipt information into the appropriate NASA database program or system for NASA procured items.	1,680 Line Items	Enter receipts into database or system within two (2) workdays of receipt.
Replenish	The Contractor shall enter into the appropriate NASA/Contractor database all receipts that are to replenish SACOM supply inventory or are direct delivery stock items to customers.	25,300 Line Items	Enter receipts into database or system at the time of receipt. Stage for delivery to warehouse or customer within one (1) workday of receipt.
Cylinder	Receive, manage, issue and inventory gas cylinders including propane, acetylene, etc.	900 Gas Cylinders	Cylinder/Container inventory and tests conducted in accordance with established time frames in CFR 49 178.35. Documentation is available on container location and time onsite.

2.1.2 Packaging and Shipping Operations

A. Scope

Packaging and Shipping Operations include a centralized shipping function at MAF responsible for a compressive packaging and shipping solution. This operation shall be managed by personnel knowledgeable in the packaging and shipping of outbound freight, certified in the proper use of forklifts and pallet jacks, and certified to handle chemicals and other materials requiring special handling.

B. General Requirements

The Contractor shall provide a packaging and shipping function which includes, but is not limited to:

1. Performing packing and shipping to ensure that all freight is processed and shipped in accordance with DRD LS01-2 in support of NASA Projects and other user(s)/tenant(s).
2. Accounting for and track all shipments from receipt of items being shipped in accordance with NPR 6000.1, *Requirements for Packaging, Handling and Transportation for Aeronautical and Space Systems, Equipment, and Associated Components*, and NPR 6200.1, *NASA Transportation and General Traffic Management*.
3. Inspecting and verifying all equipment, materials and items to be shipped to ensure that all NASA Control Numbers, part numbers, serial numbers and other identification numbers correspond with the shipping document as recorded on the NF-1149 Shipment/Transfer of Accountability of NASA Property or NASA Shipping Notice.
4. Picking up all hazardous materials shipments from user(s)/tenant(s) locations. The Contractor shall process hazardous material shipments per the shipping document and in compliance with the *Hazardous Materials Regulations*, 49 CFR Subtitle B, Subchapter C; as applicable.
5. Picking up all shipments from user(s)/tenant(s) locations and process per the shipping document to ensure effective adherence to special handling and shipping constraints.
6. Verifying there is a contract or purchase order number, which authorizes the shipment of all equipment being sent for repair, test, or relocation to destinations other than another NASA Center.
7. Providing qualified hazardous materials packer/shipper personnel to sign the Shippers Certification of Shippers Declaration for all shipments containing hazardous materials. Ensure that only personnel who have been trained in accordance with subpart H of Part 172 in Title 49, Code of Federal Regulations (CFR), prepare shipments containing hazardous materials for shipment.
8. Processing Department of Defense (DD) Form 1149, Requisition and Invoice/Shipping Document, or alternate documentation as approved by the appropriate transportation officer and appropriate regulations. Ensure the appropriate SEMO or designee signs the DD 1149 Form. If no signature is present, inform the customer immediately the form cannot be accepted without an approved signature.
9. If any items on the invoice document are NASA tagged equipment, the Contractor shall confirm with Contractor Equipment Management personnel to ensure the equipment is in the system and the dollar value of the item(s) on the NASA Form (NF) 1149 match the

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dollar value in SAP. If the dollar values do not match, the Contractor shall change the amount on the NF-1149 Form to match the SAP dollar value.

10. Maintaining documentation and reporting cost associated with packaging and shipping.

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
2.1.2 Packaging and Shipping Operations			
Plan	Provide a plan that addresses how to ensure a safe, efficient, effective packaging and shipping program.	One (1)	In accordance with DRD LS01-2.1.
Shipping and Packaging	Prepare all routine shipments of equipment and materials from SSC.	4460	Appropriate paperwork and cost data shall accompany freight through shipping process.
Hazardous Shipping	Package and prepare hazardous materials for shipment.	50	Hazardous materials are prepared in accordance with subpart H of Part 172 in Title 49, code of Federal Regulations, (CFR).
Pickup	Provide for the transport of shipments from the customers' facility to the packing and shipping facility for processing.	400	90% of priority shipment requiring next day delivery service, received before 2:00 p.m. will be packaged & shipped the same day (excluding shipments containing hazardous materials, international shipments or items that require extensive packaging)

2.1.3 Transportation, Moving, Hauling and Mail Service

A. Scope

Operate and manage all vehicles identified in Attachment J-9, *Government Furnished Property*, including but not limited to boats, buses, cars, mobile cranes, forklifts, hoists, trams, and vans. Provide moving, hauling, delivery, and driver services. The Government may request that

additional driver services be provided to support special NASA functions, official visitors, and other passenger transportation requirements.

Provide mail services to the user(s)/tenant(s). Mail services are largely customer oriented and will rely on the Contractor's ability to establish an efficient, courteous and quality customer service approach for pickup and delivery of mail. The mailroom at each site shall be the focal point for the receipt or dispatch of mail, internal distribution to customer office locations or entry into the U.S. Postal Services (USPS) mail system.

B. General Requirements

The Contractor shall provide transportation, moving, hauling, and mail function with includes, but is not limited to:

1. Transportation

- a. Perform and manage transportation logistics in accordance with DRD LS03-2.1.
- b. Provide annual justification/re-justification for the number and types of all vehicles utilized in support of NASA and NASA programs. Provide justification of vehicle utilization in accordance with DRD LS04-2.1.
- c. Upon notification from the CO or designee, the Contractor shall provide driver services.
- d. Utilize the NASA-owned onsite service and fueling stations for fueling of Government-furnished vehicles. General Services Administration (GSA) vehicles used offsite shall be fueled and maintained per GSA guidelines.
- e. Provide a liaison function between NASA and GSA for the coordination of all activities and reporting necessary in support of operating NASA-owned and GSA Interagency Fleet Management System (IFMS) vehicles.
- f. Input the required data into the Federal Automotive Statistical Tool (FAST) for any contractor-acquired and NASA-owned or GSA leased vehicles annually, as scheduled by the NASA Fleet Manager in accordance with DRD LS05-2.1.
- g. Notify the COR and instruct the vehicle user to contact the GSA Accident Management Center (AMC), their supervisor, and official law enforcement authorities immediately after an accident to ensure effective reporting of all vehicle accidents. Initiate vehicle exchange and damage repair after the appropriate SSC or MAF NASA Transportation Officer's approval is received.
- h. Manage and operate all mobile transportation and handling equipment such as bridge and derrick cranes, hoists and air bearings, and mobile equipment such as truck-mounted cranes, bulldozers, and lift trucks per Attachment J-9, *Government*

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Furnished Property, in accordance with DRD LS06-2.1. Operate and certify cranes per NASA-STD-8719.9, Standard for Lifting Devices and Equipment and other applicable NASA and OSHA standards and codes.

- i. Support and coordinate critical hardware handling, moves or critical lifts.
- j. Provide certified forklift and crane operators for handling all equipment and material moves requiring forklifts or cranes.
- k. Perform marine logistics in accordance with DRD LS03-2.1. Marine logistics includes, but is not limited to, the operation of the Tugboat Clermont II and work barges for the movement of propellants, supplies, equipment or materials or the acquisition of tug services when deemed more economical by the Government. The Contractor is also responsible for the acquisition and storage of materials and supplies when required for extended offsite operations.
- l. Coordinate propellant barge deliveries to the SSC test site, as outlined in PWS 6.1.5.
- m. Submit on a monthly basis a consumable usage report, which provides the amount of fuel used during the month in accordance with DRD LS05-2.1.

2. Moving and Hauling

- a. Perform and manage moving and hauling logistics in accordance with DRD LS03-2.1.
- b. Pick up, deliver, load, transport, unload, and/or rearrange items between and within MAF or SSC.
- c. Properly schedule and coordinate all requests with the customer.
- d. Provide personnel moves. This function includes moving an assortment of furniture, equipment, supplies, etc. Provide disassembly, packing, loading, transportation, unloading, and re-assembly as required. There are no restrictions on weight or size of items to be moved.
- e. Provide parcel delivery of materials in warehouse to customers. Pick up materials for delivery as staged in the warehouse daily.
- f. Ensure proper control, protection, preservation, and disposition of move assets.
- g. Ensure customer move activity is documented in accordance with PWS Section 1.3.2.

3. Mail Services

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- a. Provide a full service mail operation that complies with the United States Postal Service (USPS) requirements for mail meter use and management; mail sorting and bagging; and complies with the latest revisions of *USPS Domestic Mail Manual (DMM)*, *USPS International Mail Manual (IMM)*, *USPS Rates, Fees and Calculators*, *USPS Postal Zone Charts*, *U.S. Publication 28, Postal Addressing Standards* and *NASA Mail Management Guide (NMMG)*.
- b. Provide for expeditious handling and accurate delivery of external and internal mail (including express mail and small packages) in accordance with DRD LS03-2.1. Processing steps shall be kept to a minimum; sound principles of workflow shall be applied; and equipment utilized should enhance the workflow.
- c. Provide mail stop to mail stop courier service, maintenance of mailing and standard distribution lists, distribution of periodic documents, and a pickup location in the mailroom for user(s)/tenant(s).
- d. Restrict access to mailroom, mail, and meters to authorized mailroom personnel who are to maintain control of the mailroom at all times. Meter security shall be handled in accordance with the NMMG.
- e. Follow procedures established by USPS and NASA for handling any suspicious packages or mail in accordance with NPD 1460.1, *Agency Mail Management Program*, and MPR 1551.1, *Mail Management and Distribution*.

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
2.1.3 Transportation, Moving, Hauling and Mail Service			
Plan	Provide a plan that addresses how to ensure safe, efficient, and effective transportation, moving, hauling, and mail logistics.	One (1)	In accordance with DRD LS03-2.1.
Metrics	Provide all necessary vehicle validation information and transportation metrics.	415 plus NASA GSA vehicles, forklifts, boats and cranes	In accordance with DRD LS04-2.1.
Pickup & Delivery	Pick up, deliver, load, transport, unload, and/or rearrange between and within SSC and MAF.	1900 work orders	In accordance with DRD LS03-2.1.
Moves	Personnel moves, including packing, loading, transportation, unloading, and re-assembly as required.	470 moves	In accordance with DRD LS03-2.1.
Between Sites	Provide transportation Between MAF and SSC twice daily.	520 trips	Trips are regularly scheduled, timely, safe

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
			and cost effective.
Driver	Drive automobiles, vans, or limousines to transport passengers. May occasionally carry cargo.	140	Passenger(s) delivered to destination in a timely and safe way.
Sorting	Sort mail, information flyers and newsletters.	505,000	In accordance with DRD LS03-2.1.
Delivery	Mail delivery.	SSC: 141 Mail Delivery Stops MAF: one (1) Center Pickup	In accordance with DRD LS03-2.1.

2.1.4 Marine Transportation, Handling and Maintenance (IDIQ Only)

NOTE: Effort in this PWS section is not part of the Core Services and if determined appropriate, will be authorized by an IDIQ task order.

A. Scope

The Contractor shall be responsible for the marine transportation and handling services activities, using government furnished equipment and materials, to include but not limited to transport and handling associated with the Space Launch System Core Stages, Ground Support Equipment, Marine Transportation Equipment, and Structural Test Assemblies and associated equipment. The contractor shall also be responsible for the general marine transportation activities along both inland US waterway routes and ocean routes of NASA cargo to/from NASA Centers located in the southeastern US.

B. General Requirements

1. The Contractor shall:
 - a. Designate qualified personnel and management to perform the overall shipment/movement activities. These activities shall include, but not limited to, all operations, maintenance, staffing, navigation, inspections, permits, certifications, training and recordkeeping.
 - b. Designate a qualified lead person to be onboard during all vessel movements.
 - c. Develop and provide plans to describe the approach, personnel, equipment and activities needed to accomplish the training, preparation, testing, approval, loading, securing and overall shipment operations for each shipment.
 - d. Operate, maintain and test ground support equipment.

- e. Loading/unloading of SLS cargo.
 - f. Securing cargo and ground support equipment to barge.
 - g. Provide tug services and NASA Barge Pegasus staffing.
2. The contractor shall perform general marine operations and maintenance of the government furnished NASA Barge Pegasus. Operations and maintenance shall be accomplished in accordance with applicable Federal, State and Locals laws and regulations. Maintenance activities shall include dry docking as required of both the NASA Barge Pegasus and Utility Boat Pelican.

2.2 Property Management

A. Scope

This PWS section identifies the requirements associated with supply and material management, equipment management, and disposal operations of NASA's government property at the SSC and MAF. These functions include, but are not limited to; furnishing operations; redistribution and reutilization operations including receipt, screening, processing precious metals for reclamation purposes, reutilization onsite, transfers to other Federal agencies and other NASA Centers and processing of surplus property through GSA sale and interfacing with GSA for excess and surplus property; maintaining equipment accountability of the NASA tagged property to include tagging incoming property, performing physical inventories, tracking outgoing and incoming property under repair and maintaining warranty information on equipment and facilities, heritage equipment documentation, tracking personal property used by individuals and interfacing with NASA Financial Management in the reporting of the SSC and MAF property.

Perform property management and administration of all property, including Government provided property, acquired by, or in possession of, the Contractor and subcontractors. A property management plan shall be prepared and maintained in accordance with DRD LS07-2.2, *Property Management Plan*.

B. General Requirements

- 1. The Contractor shall establish and maintain a property system for identifying, listing, tracking, and reporting all property received during the Phase-in period and during the life of the contract. This system shall include all property that is:
 - a. Not required to be recorded in NASA's property management system (i.e., Contractor Managed Property) or
 - b. Acquired by the Contractor for Contractor use in the performance of the PWS requirements and for which the Contractor has physical custody.

2. Coordinate and comply with all NASA property rules and regulations to include audits and inventories, in accordance with NASA Procedural Requirement (NPR) 4200.1, *NASA Equipment Management Procedural Requirements*, and FAR 52.245-1, *Government Property*.

C. Reporting Requirements

The Contractor shall develop, maintain, and ensure the following deliverables are accurate and timely as defined in the specific DRD(s) listed below:

DRD LS02-2.2	<i>Commodity Use Rates and Records Report</i>
DRD LS07-2.2	<i>Property Management Plan</i>
DRD LS08-2.2	<i>Fuels, Forecasting, Receiving and Consumption</i>
DRD LS09-2.2	<i>Redistribution, Utilization, and Disposal</i>
DRD LS10-2.2	<i>Space Utilization</i>
DRD LS11-2.2	<i>Real Property Inventory & Notice of Accountability and Acceptance NASA Form 1046</i>
DRD LS12-2.2	<i>Report, Propellants and Pressurants Usage and Forecasting</i>

2.2.1 Supply and Material Management

A. Scope

Operate and maintain a material management system for the tracking, processing, managing, and issuing of spares, parts, store stock, standby stock, program stocks and warehousing, which maximizes the use of technology to improve efficiency and data integrity. The system shall comply with the requirements specified in section 1.1.3.

B. General Requirements

The Contractor shall:

1. Operate the NASA Materials Management Initiative (MMI) supply and material management function in accordance with NPR 4100.1, *NASA Materials Inventory Management Manual*, as applicable.
2. Provide a supply and material management function in accordance with NPR 4100.1, *NASA Materials Inventory Management Manual*.
3. Perform supply and material management operations in accordance with DRD LS07-2.2.
4. Identify, acquire, and manage the necessary spares, supplies, equipment, consumables, and other items necessary to sustain the functional capabilities and activities for both MAF and SSC. The Government will reserve the right to prioritize all acquisitions.

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5. Manage and coordinate fuel requirements and logistics, provide long range forecasting, order and maintain levels of propane, diesel, and gasoline fuel for mobile/portable equipment and fixed tanks to support operations and as requested by NASA, programs and tenants per DRD LS08-2.2.
6. Manage and coordinate propellant and pressurant requirements and logistics, provide long range forecasting, order and maintain levels of cryogenic liquids and propellants necessary to support operations and as requested by NASA, programs, and tenants to include, but not limited to, Liquid Nitrogen, Liquid Helium, Gaseous Helium, Liquid Oxygen and Liquid Hydrogen per DRD LS12-2.2.

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
2.2.1 Supply and Material Management			
Supply	Receive, store, and issue materials, equipment, and other items from stockroom and warehouse.	210,000 transactions	In Accordance with DRD LS07-2.2.
Inventory	Inventory of stores and bench stock according to the approved schedule. Inventory control records, blocked stock records, and count sheets will be generated in SAP.	Quarterly - inventories	In Accordance with DRD LS07-2.2.
Shelf Life	Material and stock shelf life control.	720 Items	In Accordance with DRD LS07-2.2.
Documents	Perform computer input and inquiries, organize and maintain a variety of Supply related document files.	84,200 Documents & Files	In Accordance with DRD LS07-2.2.
Plan	Provide a plan that addresses how to ensure safe, efficient, effective transportation and moving services.	One (1)	In Accordance with DRD LS07-2.2.
Forecast	Forecast Propellant and Fuel Usage.	One (1)	In Accordance with DRD LS08-2.2.

2.2.2 Office Furnishings

A. Scope

Manage the office furnishings operations including furniture receipt, storage, issue, repair, determination of scrap metal furniture, field and warehouse assembly and disassembly.

B. General Requirements

The Contractor shall provide a furniture operation including, but not limited to, the following:

1. Maintain an inventory of all Government owned office furniture including modular

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furniture and acoustical panels; inventory data shall be available upon Government request.

2. Receive new or returned furniture in the warehouse, inspect for damage, and store safely.
3. Identify and prepare furniture for issue; clean, polish, and tag for delivery. Assemble those pieces of furniture needing assembly in warehouse.
4. Maintain a minor furniture repair program. Repair includes, but is not limited to, repair of serviceable furniture; such as, cleaning and reupholstering of acoustical panels, replacing casters, pneumatic cylinders, under seat mechanisms; adjusting drawers; covering scratches; filling holes; and repairing and replacing locks.
5. Furnish repair parts as necessary. Repair parts include, but are not limited to, casters, pneumatic cylinders, under-seat mechanisms, locks, refinishing products, wood fillers, screws, and fabric for re-upholster of acoustical panels. If cumulative repairs exceed two thirds of the replacement cost of the item, the Contractor shall notify the Government and identify the item as scrap.
6. Cannibalize parts from non-repairable furniture upon approval of the Center SEMO or designated Representative.
7. Properly disposition furniture items returned to the warehouse.

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
2.2.2 Office Furnishings			
Receive	Receive new (or returned) furniture and manage warehouse to ensure furniture is available for issue and is stored safely.	5800 Items	Inspect and log receipt of all new or return furniture into an appropriate NASA database or system within two (2) working days.

2.2.3 Redistribution, Utilization and Disposal

A. Scope

The Contractor shall provide, manage and operate a redistribution, utilization, and disposal of Government property function.

B. General Requirements

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The Contractor shall develop, implement, operate and maintain a property management function for the redistribution, utilization, and disposal of Government property with shall include, but is not limited to, the following:

1. Perform redistribution, utilization, and disposal functions in accordance with NPR 4300.1, *Personal Property Disposal Procedural Requirements* and NPR 4310.1, *Identification and Disposal of NASA Artifacts* in per DRD LS07-2.2.
2. Utilize and continuously update the *NASA PP&E/DSPL* for the purpose of accounting for and tracking all disposal activities from initial receipt to final disposition.
3. Operate and maintain a total warehousing and documentation function for the reutilization and disposal of excess Government property.
4. Screen and excess hazardous materials in compliance with all applicable Federal, State and local laws, regulations, policies, procedures and directives; and transfer, donate or sell and remove said materials from their in-place location. Upon receipt, all hazardous materials shall be placed only in designated storage areas.
5. Place all artifacts and/or historically significant items in designated secure areas upon receipt.
6. Perform activities necessary to support Government contracts for scrap material pick-ups.
7. Process all requests for reutilization and authorizations for disposal including, Standard Form (SF) 122, *Transfer Order Excess Personal Property, Request for Turn-in*, SSC Form 55, NASA Form NF811, *Determination for Classification of Property as Scrap or Salvage*, NASA Form NF812 *Determination and Authorization to Abandon or Destroy Surplus Property* per DRD LS07-2.2.
8. Remove tags and markings only as allowed by approved agency policy and update any records and systems affected by the disposal of the property including but not limited to SAP, N-Prop, CMMS and DDMS.
9. Complete reutilization/disposal activities, including issuance of property to requestors that include, but are not limited to, onsite entities, other NASA Centers, other Federal agencies, schools and other qualified non-Federal recipients of donated property, and placing scrap metal and material destruction in appropriate bins.
10. Operate and maintain all functions necessary to successfully complete GSA or NASA sales and exchange sales for reutilization of property.
11. Provide special tailgate-loading services to include loading by crane and/or forklifts rated higher than 6,000 lbs. Provide tailgate-loading service for sold items.

12. Capture and provide records of all costs associated with preparations of sales to the appropriate NASA Center Property Disposal Officer (PDO), per DRD LS09-2.2.
13. Perform 100% inventory of Redistribution annually. Reported results shall include all line items, acquisition cost of items, and item number and acquisition cost of line items not located per DRD LS09-2.2.

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
2.2.3 Redistribution, Utilization and Disposal			
Transactions	Requests for reutilization and authorization for disposal.	8,000 transactions	In Accordance with DRD LS07-2.2.
Inventory	Perform 100% Inventory.	One (1)	In Accordance with DRD LS09-2.2.
Sales	Report cost of Sales.	Eight (8) sales - GSA Sales	In Accordance with DRD LS09-2.2.

2.2.4 Real Property and Equipment Accountability

A. Scope

The Contractor shall assist in planning, organizing, controlling, and coordinating the Real Property program and Real Property space utilization. The Contractor shall manage, track, and perform physical inventories for material and equipment.

B. General Requirements

The Contractor shall ensure the efficient and effective utilization of real property and manage and maintain equipment accountability to include, but not limited to:

1. Receiving and processing Real Property space requests and coordinating approval with the appropriate Facility Utilization Officer (FUO).
2. Maintaining the NASA Occupancy and Square Footage Data and associated 1/8” floor plans and providing monthly occupancy report in accordance with DRD LS10-2.2.
3. Assisting with planning, organizing, controlling, and coordinating the Real Property Program per NASA NPR 8800.15, *Real Estate Management Program* and the NASA Real Estate Desktop Guide in accordance with DRD LS11-2.2.
4. Operating and maintaining the NASA Integrated Asset Management – Property, Plant, and Equipment (IAM/PP&E) and the NASA Real Property Management System (RPMS) per DRD LS07-2.2.

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5. Complying with all applicable Governmental regulations, including the NASA NPR/NPD 4200.1, NASA Equipment Management.
6. Managing material/equipment in Custodial Storage warehouses in accordance with NASA NPR/NPD 4200.1 includes, but is not limited to, the addition, removal, tracking, inventory, review, and processing of custodial storage items and related documentation.
7. Performing annual physical inventories of all NASA controlled and sensitive equipment in accordance with NASA NPR/NPD Series 4200. This function includes advance notification to property users of inventory date, the physical scanning of equipment, creating discrepancy files, suspense files, tracking incident/survey/found on station reports, and final closeout of inventory process.
8. Scan the appropriate NASA Equipment Control Number (ECN) tags and decals, where required, for property control.
9. Maintain a tracking system for all equipment shipped from NASA MAF or SSC for repair, test, and relocation, borrow, etc.
10. The Contractor shall be responsible for processing equipment received at MAF or SSC, assigning and maintaining voucher numbers for the acquisition documents, and physically tagging equipment that meets the tagging criteria with an Equipment Control Number (ECN) tag. If the tagging criteria are not met, identify the property or equipment as U.S. Government owned.
11. Additionally, create a corresponding equipment record in the CMMS and DDMS as appropriate for the type of equipment being processed. New equipment records shall be complete, with all applicable fields populated, to include, but not limited to, equipment criticality code assignments, location, manufacturer, installation date, type, model, warranty date, purchase price, SSC SOMRD designation, etc.
12. The Contractor shall provide Property Custodian(s) to perform the duties outlined in NASA NPR 4200.2. *Equipment Management Manual for Property Custodians* for the control of Government property.
13. Provide Property Custodian training to approved Custodians and Managers. All new custodians shall be trained within one month. All custodians shall receive refresher training as requested.
14. The Contractor shall prepare and submit all reports in accordance with NASA HQ, MAF and SSC requirements per DRD LS07-2.2.

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
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PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
2.2.4 Real Property and Equipment Accountability			
Plan	Provide a plan that addresses how to ensure a safe, efficient, effective Real Property and Equipment Accountability function.	One (1)	In Accordance with DRD LS07-2.2.
Real Property	Assist with planning, organizing, controlling, and coordinating Real Property records. Database will be updated as needed to accurately report the value of Real Property as determined by NASA.	2000 inputs	In accordance with DRD LS11-2.2.
Space Utilization	Contractor shall maintain the NASA Facility Utilization database and records to support the monthly and annual Space Utilization Reports.	Monthly and annual Space Utilization Reports	In accordance with DRD LS10-2.2.
Tagging and Annual Inventory	Processing equipment received, assigning and maintaining voucher numbers for the acquisition documents, and physically tagging equipment that meets the tagging criteria. Perform inventory of 1/3 of all custodial accounts yearly.	20,000 actions and 120 custodial accounts.	In Accordance with DRD LS07-2.2.
Triennial Inventory	100% inventory of controlled and sensitive equipment NOTE: SSC currently has a waiver in place to perform an inventory on a triennial basis.	One (1)	In Accordance with DRD LS07-2.2.
Warehouse	Establish controls to ensure placement of material in a storage location in a safe and secure manner, providing easy access, identification, and retrieval. Material may include pilferable, shelf life, and hazardous material items.	34,500 transactions	In Accordance with DRD LS07-2.2.

3.0 SAFETY, HEALTH AND ENVIRONMENTAL

A. Scope

NASA is strongly committed to the safety and health of the workforce, teamwork, and integrity between organizations in order to achieve mission success. Safety requirements are a part of the occupational and environmental health of personnel and activities. NASA's commitment is achieved by the following Safety, Health, and Environmental (SHE) critical elements:

- Management leadership and employee involvement
- System and worksite analysis
- Hazard prevention and control
- Safety, health, environmental training
- Environmental compliance

These elements allow for the establishment of a highly skilled, diverse, and motivated workforce committed to achieving mission success. The NASA management team is committed to preventing human injury and ensuring the safety of all operations and products. The Contractor is expected to support these endeavors and demonstrate the same commitment. This section includes requirements for cross-cutting activities which provide the foundation for the success of a SHE program.

B. General Requirements

1. SSC and MAF Requirements

The Contractor shall establish, implement, and administer a SHE program consisting of an industrial safety, occupational health, and environmental program that (1) prevents employee fatalities, (2) reduces the number of incidents, (3) reduces the severity of employee injuries and illnesses, and (4) protects the environment, through the ongoing planning, implementation, integration and management control of these programs in accordance with DRD SA01-3.0, *Safety and Health Plan*. The Contractor's Safety and Health Plan shall address each of the SHE critical elements in detail that is applicable to the contracted effort.

The SHE Program shall be implemented, operated, and maintained in accordance and consistent with the SHE requirements of:

- NPR 1800.1, *NASA Occupational Health Program*
- NPR 8621.1, *NASA Procedural Requirements for Mishap and Close Call Reporting, Investigation, and Recordkeeping*
- NPR 8715.1, *NASA Occupational Safety and Health Programs*
- NPR 8715.3, *NASA General Safety Program Requirements*
- NASA-STD-8719.12, *Safety Standard for Explosives, Propellants, and Pyrotechnics*
- MPD 1840.1, *MSFC Environmental Health Program*
- MPR 8500.1, *MSFC Environmental Management Program*
- MPR 8715.1, *Marshall Safety, Health and Environmental (SHE) Program*

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- MWI 7120.6, *Program, Project, and Institutional Risk Management*
- MWI 8710.1, *Inspection and Certification Process for Pressure Vessels and Systems*
- MWI 8715.1, *Electrical Safety Program*
- MWI 8715.2, *Control of Hazardous Energy (Lockout/Tagout) Program*
- MWI 8715.5, *Area/Building Manager Program*
- MWI 8715.10, *Explosives, Propellant, and Pyrotechnics Program*
- MWI 8715.11, *Fire Safety Program*
- MWI 8715.12, *Safety, Health and Environmental-Finding Tracking (SHEtrak) System*
- MWI 8715.13, *Safety Concerns Reporting System (SCRS)*
- MWI 8715.15, *Ground Operations Safety Assessment Program*
- SPR 1280.1, *Stennis Management System Requirements*
- SPR 1740.1, *Pressure Vessel and Pressurized System Procedural Requirements*
- SPR 6330.1, *Explosive Safety Program*
- SPR 7120.1, *Risk Management Procedural Requirements*
- SPR 8715.1, *SSC Safety and Health Program Requirements*
- SPR 8715.2, *Operational Readiness Program Procedural Requirements*
- SPR 8715.7, *Range Safety Program*
- SPR 8730.1, *Control of Nonconforming Product*
- SPR 8730.2, *NASA SSC Parts Control Program*
- SPR 8730.5, *SSC Material Review Board Procedural Requirements*
- SPR 8730.6, *Foreign Object Elimination Program*
- SPR 8739.1, *Software Assurance Procedural Requirements*
- SSP-8715-0001, *SSC Safety and Health Handbook*
- SCWI-1250-0001, *Food Services Sanitation*
- SCWI-1280-0001, *Management System Internal Audits*
- SCWI-1800-0001, *Ergonomics Program*
- SCWI-1800-0002, *Hearing Conservation*
- SCWI-1800-0005, *Hazard Communication*
- SCWI-1800-0008, *Reproductive and Developmental Health Protection Program*
- SCWI-1840-0001, *Respiratory Protection Program*
- SCWI-8500-0018-ENV, *Lead Hazard Control Program Plan*
- SCWI-8500-0019-ENV, *Asbestos Hazard Control Plan*
- SCWI-8500-0029, *Isocyanate Hazard Control Plan*
- SCWI-8700-0002, *Health Physics*
- SCWI-8700-0004, *Ionizing Radiation*
- SCWI-8700-0005, *Nonionizing Radiation*
- SCWI-8710-0001, *System Safety and Health*
- SCWI-8710-0004, *John C. Stennis Space Center Audit Process Program*
- SCWI-8715-0002, *Personal Protective Equipment*
- SCWI-8715-0003, *Fall Protection Program*
- SCWI-8715-0004, *Confined Space Entry Program*
- SCWI-8715-0005, *Safety, Health, Housekeeping and Essential Item Inspections*
- SCWI-8715-0006, *Electrical Safety Program*
- SCWI-8715-0008, *Construction Safety and Health Program*

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- SCWI-8715-0010, *Process Safety Management Program*
- SCWI-8715-0012, *Work in Hazardous Classification Areas*
- SCWI-8715-0013, *Control of Hazardous Energy Lockout/Tagout and Non-Service/Maintenance Hazardous Energy Isolation*
- SCWI-8715-0014, *Heat Stress Program*
- SCWI-8715-0015, *Laboratory Chemical Safety and Health Program*
- SCWI-8715-0016, *SSC Close Call Reporting System (CCRS)*
- SCWI-8730-0002, *Corrective Action, Preventive Action, and Improvement*
- SCWI-8730-0004, *Instructions for Initiating and Processing Form SSC 715- CPI Report*
- SCWI-8730-0005, *Receiving, Inspection and Testing*
- SCWI-8830-0002, *Indoor Air Quality Program*
- SWI-8710-0001, *Quality Stamp Control*
- SPLN-8621-0003, *Mishap Preparedness and Contingency Plan*
- SPLN-8715-0004, *SSC Chemical Hygiene Plan*
- SPLN-8838-0001, *SSC Fire Protection/Prevention Program Plan*
- SSTD-8070-0007-CONFIG, *Variance and Alternate Standard Requests*
- SSTD-8070-0008-CONFIG, *Discrepancy & Correction Report*
- AS60-OI-021, *MAF Food Sanitation Program*
- AS60-OI-022, *MAF Automated External Defibrillator (AED) Program*
- AS60-OI-023, *MAF Ionizing Radiation Safety Procedures*
- AS60-OI-024, *MAF Ergonomics Program*
- AS60-OI-025, *MAF Bloodborne Pathogen*
- AS60-OI-026, *MAF Confined Space Program*
- AS60-OI-027, *MAF Hearing Conservation Program*
- AS60-OI-028, *MAF Hazard Communication Program*
- AS60-OI-029, *MAF Respiratory Protection Program*
- AS60-OI-030, *MAF Asbestos Program*
- AS60-OI-033, *MAF Industrial Hygiene Program*
- AS60-OI-034, *MAF Occupational Medicine*
- AS60-OI-035, *Non-ionizing Radiation Procedures at MAF*
- OSHA, Environmental Protection Agency (EPA) and other Government safety and health regulations and industry standards, as applicable

The Contractor shall support the overall NASA SHE Program by engaging in activities to include, but not limited to, administering a site-wide industrial safety and health awareness program in accordance with DRD SA02-3.0, *Safety and Health Awareness Annual Plan*; planning and coordinating monthly/quarterly safety and health meetings; maintaining internal safety and health websites; and providing site-wide safety and health services for NASA, NASA contractors, resident NASA projects, and other users/tenants. These services shall include all aspects of:

- Safety management
- System safety
- Industrial safety

- Test operations safety
- Explosive safety
- Range safety
- Product safety
- Industrial hygiene
- Occupational health including medical services

The Contractor shall establish and monitor a dedicated “Hotline” phone to receive site-wide employee safety, health, and environmental concerns. This hotline shall be available 24 hours a day, 7 days a week. At MAF, the Contractor shall evaluate all employees’ hazardous conditions reported using this hotline and record concerns as specified in in MWI 8715.13, *Safety Concerns Reporting System (SCRS)*. At SSC, the Contractor shall record all reported hazards on this hotline in the *Close Call Reporting System (CCRS)* in accordance with SCWI-8715-0016, *SSC Close Call Reporting System (CCRS)*.

The Contractor shall perform an annual SHE self-assessment of the Contractor’s SHE Program in accordance with DRD SA03-3.0, *Contractor Safety and Environmental Health Program Annual Self-Assessment Report*.

2. MAF Only Requirements

The Contractor shall administer the NASA SHE program assuring Center compliance with SHE policies, requirements, and controls to include performing surveillance of users/tenants, other NASA contractors, and visitors within the MAF manufacturing environment in accordance with the applicable documents listed above. In the event that a user/tenant is also the Contractor or its affiliate, the Contractor shall not provide SHE surveillance/oversight for said Contractor/affiliate user/tenant. Instead, the Contractor shall coordinate with the NASA MAF Safety Manager, who will provide independent surveillance of the Contractor/affiliate user/tenant. For the purposes of this requirement, the term “affiliate” shall include, but not be limited to, all members of Joint Ventures and their respective affiliates. This restriction is applicable to all of PWS Section 3.

NOTE: NASA will be responsible for conducting independent surveillance, assessments, evaluations, and inspections to verify MAFs SHE Program’s continual compliance in accordance with 29 CFR 1960.26, Conduct of Inspections and NPR 8715.1, and MPR 8715.1.

C. Reporting Requirements

The Contractor shall develop, maintain, and ensure the following deliverables are accurate and timely as defined in the specific DRD(s) listed below:

DRD SA01-3.0	<i>Safety and Health Plan</i>
DRD SA02-3.0	<i>Safety and Health Awareness Annual Plan</i>
DRD SA03-3.0	<i>Contractor Safety and Environmental Health Program Annual Self-Assessment Report</i>

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
3.0 Safety, Health and Environmental			
Permits	The Contractor shall issue all permits such as hot work, dig, confined space entry, energy, etc.	2,523 hot work; 720 dig; 307 confined space; 900 zero energy	No instance of permits not being issued when requested and required.

3.1 Safety and Risk Management

A. Scope

The Contractor shall establish and implement a System Safety Program that (1) is effective in assessing facilities and operations to identify hazardous conditions and control methods to minimize the level of risk directly or indirectly related to performing an operation or operating a facility; and (2) ensures the residual risks identified during the assessment are accepted by the appropriate level of management based on the overall level of risk classification assigned the facility or operation prior to the actual startup or restart of the facility or operation.

B. Limitations, Restrictions, and/or Special Conditions

At **SSC**, the Contractor shall provide a Safety Program that is certified by OSHA Voluntary Protection Program (VPP) within eighteen (18) months after contract start. At **MAF**, the Contractor shall provide a Safety Program that incorporates the OSHA VPP requirements within eighteen (18) months after contract start.

C. General Requirements

1. SSC and MAF Requirements

The Contractor shall ensure all their employees are knowledgeable of, and comply with, all appropriate safety requirements, including personnel certifications and training as described in PWS Section 1.1.5. The Contractor shall promote safety awareness throughout all aspects of Contract performance. The Contractor shall encourage all employees located onsite to report hazardous conditions and/or situations which, if not corrected, have the potential to result in an injury to personnel or damage to equipment/property in accordance with SCWI-8715-0016, *SSC Close Call Reporting System (CCRS)*, MWI 8715.13, *Safety Concerns and Reporting System (SCRS)*, MWI 8621.1, *Mishap and Close Call Reporting and Investigation Program*.

The Contractor shall ensure system and facility safety activities are conducted for all programs and projects in accordance with SCWI 8710-0001, *SSC System Safety and Health* and MWI 8715.15, *Ground Operations Safety Assessment Program*. The Contractor shall ensure safety risks are managed through the systematic identification,

assessment, and control of hazards and their associated risks. The Contractor shall develop a Risk Management Plan and Report in accordance with DRD SA04-3.1, *Risk Management Plan and Report*.

The Contractor shall participate in Operational Readiness Assessments (ORA), Test Readiness Reviews (TRR), Production Readiness Reviews (PRR) and other similar safety reviews to include those performed by users/tenants and other NASA contractors to assess and evaluate the safety of potentially hazardous facilities and operations, and provide feedback to the Government as requested. The Contractor shall perform and evaluate hazard analyses and safety assessments and review hazardous operation procedures for potentially hazardous operations in accordance with NPR 8715.3, *NASA General Safety Program Requirements*, SPR 8715.1, *SSC Safety and Health Program Requirements*, and MWI 8715.15, *Ground Operations Safety Assessment Program*, using COR approved techniques, and provide feedback to the Government as requested. The Contractor shall review new and/or revised NASA Safety-related documents, as necessary.

The Contractor shall report mishap and safety statistical information in accordance with DRD SA05-3.1, *Mishap and Safety Statistics Reports*. The Contractor shall use the NASA Mishap Information System (NMIS) to record and track to closure all close calls and mishaps. The Contractor shall conduct and provide support for close calls and mishap investigations, including any required follow-up to safety technical issues in accordance with NPR 8621.1, *NASA Procedural Requirements for Mishap and Close Call Reporting, Investigating, and Recordkeeping*, MWI 8621.1, *Close Call and Mishap Reporting and Investigation Program*, and SPLN-8621-0003, *Mishap Preparedness and Contingency Plan*.

The Contractor shall use the NASA provided *Safety, Health, and Environmental tracking (SHetrak)* system to record and track to closure all discrepancies identified during a facility inspection. The Contractor shall also track to closure all discrepancies assigned to the Contractor through the SHetrak system by NASA Safety and Mission Assurance (SMA) and the SMA Support Contractor. The Contractor shall have a closed-loop electronic process between SHetrak and the Computerized Maintenance Management System (CMMS) to record and track to closure work orders generated as a result of a discrepancy identified during a facility inspection.

The Contractor shall identify, capture, manage, and communicate risks to NASA. At SSC, the Contractor shall use the NASA provided Integrated Risk Management Application (IRMA) database in accordance with SPR 7120.1, *Risk Management Procedural Requirements*. At MAF, the contractor shall manage risk in accordance with MWI 7120.6, *Program, Project, and Institutional Risk Management*.

2. MAF Only Requirements

The Contractor shall coordinate and provide support to users/tenants and other NASA contractors who are responsible for implementation of the NASA Safety Program within

assigned dedicated manufacturing areas. The Contractor shall integrate existing and new user(s)/tenant(s) and other NASA Contractors into the Center’s Safety Program to preclude any performance disruptions of existing or future NASA projects at MAF. The Contractor shall provide feedback to the Government on the performance of the user/tenants, other NASA contractors, and visitors in complying with the Center’s Safety Program objectives and goals, as requested.

The Contractor shall review and evaluate potentially hazardous operation activities and project critical hardware move procedures and plans in accordance with MWI 8715.15, *Ground Operations Safety Assessment Program* and MPR 6410.2, *Identifying, Packaging, Handling, and Moving Critical Hardware*.

The Contractor shall investigate safety concerns in accordance with MWI 8715.13, *Safety Concerns and Reporting System*. The Contractor shall provide on-call Safety support for all shifts other than first, to include weekends and holidays.

D. Reporting Requirements

The Contractor shall develop, maintain, and ensure the following deliverables are accurate and timely as defined in the specific DRD(s) listed below:

- DRD SA04-3.1 *Risk Management Plan and Report*
- DRD SA05-3.1 *Mishap and Safety Statistics Report*

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
3.1 Safety and Risk Management			
Design Drawings	The Contractor shall review all design drawings for construction, modification of facilities, systems, equipment, utilities (FSEU), and potentially hazardous operations to assure compliance with the International Building Code, Federal Government and State building codes, and NASA safety and quality requirements.	1500 process plans/ test preparation sheets (TPS); 2700 drawing sheets; 83 drawing packages per year	No instances of non-compliance of International Building Code, Federal Government and State building codes, and NASA safety and quality requirements.
Confined Space Program	The Contractor shall implement and conduct a confined space program and maintain an electronic site-wide inventory database of all confined spaces accessible to the Government in accordance with 29 CFR 1910.146, <i>Permit-required Confined Spaces</i> , SCWI-8715-	1,128 confined spaces (permitted and non-permitted)	No instances of inaccurate data in the confined space database. No instances of confined space entries performed in a manner that is non-compliant with SCWI-

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PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
	0004, <i>Confined Space Entry Program</i> and AS60-OI-27, <i>MAF Confined Space Entry Program</i> .		8715-0004 and AS60-OI-27.
Safe Atmospheric Verification	The Contractor shall provide safe atmospheric verification services responsive to the Government needs in accordance with 29 CFR 1910.146.	2,420 atmospheric verifications	Atmospheric verifications performed in accordance with 29 CFR 1910.146.
	MAF ONLY		
Facility Inspections	<p>The Contractor shall perform annual OSHA safety compliance inspections of all local NASA owned or occupied facilities in accordance with:</p> <ul style="list-style-type: none"> a. 29 CFR Part 1960.25, <i>Qualifications of Safety and Health Inspectors and Agency Inspections</i>; b. NPR 8715.1, <i>NASA Occupational Safety and Health Program</i>; and c. MWI 8715.12, <i>Safety, Health, and Environmental-Finding Tracking System (SHEtrak)</i>. <p>The Contractor shall perform more frequent safety compliance inspections of facilities and areas that contain operations or activities identified to contain elevated risks to cause injury or illness to employees, damage to equipment or property, or ignite a fire.</p> <p>At a minimum these inspections are performed semi-annually in accordance with 29 CFR Part 1960.25 and NPR 8715.1, <i>NASA Occupational Safety and Health Program</i>. These facilities include, but are not limited to, research and development test facilities, laboratories, industrial facilities,</p>	40 buildings	Complete all inspections in accordance with 29 CFR Part 1960.25(c), NPR 8715.1, and MWI 8715.12.

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PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
	and equipment.		
Facility Inspection Findings	The Contractor shall verify/sample at least thirty (30%) percent of the annual facility inspection findings and associated closure rationale during the fiscal year.		No more than ten (10) discrepancies between closure rationale and inspection findings per calendar year.
Construction Site Inspections	The Contractor shall perform weekly OSHA safety compliance inspections of NASA construction sites at MAF including 100% of Construction of Facilities (CoF) construction sites and 50% of other construction sites in accordance with the requirements of 29 CFR Part 1960.25 and NPR 8715.3, Chapter 8. These inspections are performed during normal duty hours and, when requested by the Government, during non-duty hours and weekends.	104 inspections	Complete all inspections in accordance with 29 CFR Part 1960.25(c) and NPR 8715.3, Chapter 8.
Final Acceptance Inspections	The Contractor shall support final acceptance inspections of newly constructed or modified facilities/buildings in accordance with NPR 8715.3, Chapter 8.	83 facility projects	Complete all inspections in accordance with NPR 8715.3, Chapter 8.
Explosive Safety	The Contractor shall perform quantity distance calculations for explosives siting issues and provide support to evaluate and monitor the storage, handling and use of explosive, propellant, and pyrotechnic material and devices in accordance with NASA-STD-8719-12, <i>Safety Standard for Explosives, Propellants, and Pyrotechnics</i> and MWI 8715.10, <i>Explosives, Propellants and Pyrotechnics Program</i> .	Five (5) calculations	Perform in accordance with NASA-STD-8719-12 and MWI 8715.10.
Briefings	The Contractor shall participate in briefings requiring NASA MAF Safety Office support (e.g., pre-construction, pre-move, pre-test) to inform and assure personnel	24	Support briefings per Government -provided schedule.

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
	involved in the activity are aware and knowledgeable of the NASA safety regulations and requirements.		

3.2 Quality Assurance and Reliability

A. Scope

The Contractor shall provide a Quality Management System consistent with the American National Standards Institute (ANSI) American Society for Quality (ASQ) ANSI/ISO/ASQ Q9001:2008, *Quality Management Systems Requirements* and AS 9100 SAE9100, *Quality Management Systems – Aerospace – Requirements*. This shall be done in accordance with NPD 1280.1, *NASA Integrated Management System Policy*, NPD 8730.5, *NASA Quality Assurance Program Policy*, NPR 8831.2, *Facilities Maintenance and Operations Management*, MPD 1280.1, *Marshall Quality Management System Manual*, and SPD 1280.1, *SSC Management System Policy*.

B. Limitations, Restrictions, and/or Special Conditions

The Contractor shall obtain certification in ANSI/ISO/ASQ Q9001:2008 within eighteen (18) months after contract start.

C. General Requirements

The Contractor shall submit a *Quality Assurance Management Plan (QAMP)* in accordance with DRD RA01-3.2 that specifies the Contractor’s approach to assuring delivery of quality products, material and services. The Plan shall also include specific methods and processes the Contractor will implement to avoid compromising configuration of NASA project flight hardware production tooling or associated systems when working on or adjacent to the same. The Contractor shall also submit a *QAMP Quarterly Report* in accordance with DRD RA02-3.2. The Contractor shall provide to the Government verification of the ISO certification audit as well as the annual surveillance audit performed by an accredited ISO 9001 certification/registration body in accordance with DRD RA03-3.2, *ISO 9001 Certification Verification*.

The Contractor shall acquire and maintain reliability information on systems and processes that meet the intent of the NASA Reliability Program through the execution of Sections 4.1 *Design Engineering*, 4.2 *Product Data and Lifecycle Management*, and 6.0 *Facility Operations and Maintenance* of this PWS.

The Contractor shall provide Software Assurance and Software Safety support for all Contractor developed/utilized software per SPR 8739.1, *SSC Software Assurance Procedural Requirements*.

The Contractor shall ensure all personnel performing work are properly trained, certified, and qualified for assigned work requirements, to include recognition of job hazards for any equipment used. All specified work items, including, but not limited to, checkpoints, servicing, repairs, and reporting, shall be performed completely, correctly, and neatly in a safe manner that also eliminates the need for rework. Lack of required parts, other materials, or staffing shall not be an acceptable cause for nonperformance of scheduled work. The Contractor shall provide original equipment manufacturer (OEM) replacement material and parts, or, at a minimum, parts that meet the salient specifications of the OEM and match existing finish and color. The Contractor shall prevent debris from accumulating in the area or from spreading to adjacent areas during performance of work. All such debris, excess material, and parts shall be removed upon completion of work or at the end of each workday, whichever occurs first.

The Contractor shall participate in the Government Industry Data Exchange Program (GIDEP) and NASA Advisory Program in accordance with NPR 8735.1, *Procedures for Exchanging Parts, Materials, Software, and Safety Problem Data Utilizing the GIDEP and NASA Advisories* and SWI-8735-0001, *GIDEP/NASA Alerts Implementation*. The Contractor shall evaluate all incoming GIDEP and NASA Advisory documents for applicability and take appropriate action per program requirements. The Contractor shall input site specific information into the GIDEP System. When requested by the Government, the Contractor shall provide information on the usage of the GIDEP. When applicable, the Contractor shall establish and implement a parts management program for ensuring the integrity of all mechanical and electrical electronic, and electro- mechanical (EEE) parts in accordance with NPD 8730.2, *NASA Parts Policy*.

The Contractor shall manage the activities related to nonconforming products and services in accordance with SPR 8730.1, *Control of Nonconforming Product*. The Contractor shall provide a list of nonconforming products and services in accordance with DRD RA04-3.2, *Nonconforming Products and Services*.

D. Reporting Requirements

The Contractor shall develop, maintain, and ensure the following deliverables are accurate and timely as defined in the specific DRD(s) listed below:

- DRD RA01-3.2 *Quality Assurance Management Plan*
- DRD RA02-3.2 *Quality Assurance Management Plan Quarterly Summary Report*
- DRD RA03-3.2 *ISO 9001 Certification Verification*
- DRD RA04-3.2 *Nonconforming Products and Services*

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
3.2 Quality Assurance and Reliability			
SHE Compliance Audits	The Contractor shall conduct SHE compliance audits and provide support during audits or surveys performed by the Government or by	Support eight (8) - twelve (12) audits	No instance of non-compliance with MPR 8715.1, MPR 1280.6, and SPR 1280.1.

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
	<p>third parties to include data entry into the NASA provided database. The Contractor shall record and track audit findings to closure in accordance with MPR 8715.1, <i>Marshall Safety Health and Environmental (SHE) Program and MPR 1280.6, Management System Internal Audits</i>, and SPR 1280.1, <i>SSC Management System Requirements</i>. The Contractor shall also track to closure all quality corrective action requests assigned to the Contractor through SHEtrak system by NASA SMA and the SMA Support Contractor.</p>		
Investigations	<p>The Contractor shall provide support during participation in problem and failure investigations to determine root cause and provide recommendation of corrective action. The Contractor shall implement corrective action, when applicable.</p>	Two (2) – four (4)	No instance of not supporting investigations when requested by the Government.

3.3 Environmental Health

The Contractor shall implement and maintain an Industrial Hygiene Program and a Health Physics Program.

3.3.1 Industrial Hygiene

A. Scope

The Contractor shall implement and maintain an Industrial Hygiene (IH) Program. IH is the art and science dedicated to the anticipation, recognition, evaluation, communication and control of environmental stressors in, or arising from, the workplace that may result in injury, illness, or impairment, or otherwise affect the well-being of workers and members of the community.

B. Limitations, Restrictions, and/or Special Conditions

Each professional and technical member of the IH staff shall possess an academic degree in the discipline, or an equivalent combination of education and experience suitable to the responsibilities of their position.

At least one member of the IH staff shall be a Certified Industrial Hygienist (CIH), certified by the American Board of Industrial Hygiene (ABIH). The CIH shall develop, implement, and manage the IH Program.

C. General Requirements

The Contractor shall within 60 calendar days of contract start, implement a comprehensive IH Program taking into consideration the unique processes/situations applicable to the specific NASA sites. The IH program shall be guided by all applicable NASA policies and procedures, applicable Federal and State regulations, and national standards (e.g. American Conference of Industrial Hygienists (ACGIH), American National Standards Institute (ANSI), and American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)) as well as applicable documents listed in PWS Section 3.0. The IH Program shall include the development, implementation, and maintenance of programs, plans, and procedures that are in compliance with regulatory requirements and NPR 1800.1, *NASA Occupational Health Program Procedures*; topics to address in programs, plans, and procedures include, but are not limited to, asbestos, ergonomics, food sanitation, hazard communication, hearing conservation, heat stress, indoor air quality, isocyanates, lead, reproductive and developmental health, and respiratory protection. The Contractor shall submit an *IH Program Annual Plan* in accordance with DRD SA06-3.3 and an *IH Program Quarterly Report* in accordance with DRD SA07-3.3. The Contractor shall continuously review, implement, and comply with all Federal regulations, standards, and requirements pertinent to workplace hazards. In the event of conflicting standards or regulations, the more stringent shall be met.

The Contractor shall provide comprehensive IH services. These services shall include, but are not limited to, proactive and ongoing surveys, studies, investigations, and follow-up to identify, evaluate, and control chemical, physical, or biological agents that are or may be encountered in the work environment. These services shall also be available to users/tenants and contractors on a demand basis (IDIQ).

The Contractor shall review purchase requests for new hazardous materials (including new applications and uses) and monitor the issuance and use of these materials. The Contractor shall maintain and utilize an inventory of chemical and physical potential health hazards/agents throughout the NASA workplace to ensure that hazardous materials are tracked and to minimize their usage and storage.

The Contractor shall provide IH monitoring services to sample and analyze air contaminants (gases, vapors, dusts, fumes, mists, fibers, and smoke) using recognized real-time measurement techniques and time-weighted sampling methodologies requiring subsequent laboratory analysis. All sampling shall be performed using a recognized sampling method such as National Institute of Occupational Safety and Health (NIOSH), OSHA, etc. The Contractor shall provide monitoring for microbiological materials (e.g., fungi and bacteria) and employ sufficient and

pertinent exposure-monitoring techniques to ensure compliance and conformity with environmental health standards and guidelines. The Contractor shall ensure IH laboratory services used to support surveys and audits are accredited by the American Industrial Hygiene Association (AIHA) to include equipment and professional analytical services for sampling and monitoring of microbiological materials (e.g., fungi and bacteria).

The Contractor shall ensure that the analytical laboratory using polarized light microscopy (PLM) to analyze bulk materials that contain or that are suspected to contain asbestos is accredited by the National Institute of Standards and Technology/National Volunteer Laboratory Accreditation Program (NIST/NVLAP). The Contractor shall ensure that analysts performing onsite asbestos air analysis are listed on the Asbestos Analyst Registry maintained by the AIHA Laboratory Quality Assurance Programs.

The Contractor shall ensure analytical services for phase contrast microscopy (PCM) are performed in accordance with regulatory protocol and the analysis capability is eligible for accreditation by the AIHA. The Contractor shall maintain and calibrate sample collections and direct reading instrumentation used in evaluation studies of NASA work environments. The Contractor shall conduct follow-up analysis of questionable samples.

The Contractor shall perform risk assessments for chemicals that do not have published exposure limits, and recommend appropriate controls. The Contractor shall recommend techniques or methods for hazard abatement where exposures are found to be excessive. The Contractor shall provide guidance and recommendations concerning selection, use, and control of personal protective equipment (PPE). The Contractor shall work with Occupational Medicine (OM) personnel to provide employee exposure monitoring data, including individual dosimeter monitoring results, for incorporation into employee medical records. The Contractor shall investigate potential employee exposures to chemical, physical, or biological agents based on such things as OM examination findings, exposure assessments, etc. Whenever possible, investigation shall be conducted within 2 hours of receipt of notification.

The Contractor shall determine the effectiveness of industrial hygiene programs onsite by conducting Center reviews and auditing the programs. The Contractor shall compile, as directed, industrial hygiene documents needed for compliance with Federal, state and local regulations. The Contractor shall prepare correspondence to be submitted to various regulatory agencies, internal organizations, and/or other parties. The Contractor shall prepare reports and plans required by regulations. The Contractor shall prepare briefing materials and meeting summaries as necessary. The Contractor shall keep IH documentation organized at all times and easily accessible for Government use or review.

The Contractor shall develop, implement, and/or maintain various integrated industrial hygiene databases for key programs (e.g., safety data sheets, air monitoring data, hearing conservation /noise survey data, respiratory protection training, asbestos hazard assessment data). Data shall be maintained in data systems owned by the Government in accordance with Section 1.1.3. All data, database systems, and database documentation obtained or developed during this contract must be provided to the Government upon request and in the format specified by the Government. The Contractor shall maintain the existing exhaust ventilation system testing

program to include an inventory of all ventilation systems used to control hazardous air contaminants generated by hazardous operations and processes. The Contractor shall identify any new exhaust ventilation systems and add to the inventory.

The Contractor shall provide advisory services to NASA support contractors and users/tenants in fulfillment of their Federal and State regulatory obligations related to IH. The Contractor shall provide industrial hygiene labels and signs as needed.

The Contractor shall conduct investigations and field audits under the following circumstances: as a follow-up when noncompliance conditions were previously identified; by random inspection; upon notification of possible noncompliance conditions through employee complaints; as part of mishap investigations; or as scheduled by appropriate Government officials. The Contractor shall provide a report of findings and recommendations to the Government, as required.

The Contractor shall provide an effective system for following up on IH complaints and recommendations and assure they are tracked until closure. The Contractor shall respond in cases of emergency involving exposures or hazards that appear to be immediately dangerous to health or life. In such cases, the Contractor has the authority to request the operation creating the exposure or hazard be stopped. The Contractor shall immediately inform the NASA Environmental Health Officer or their authorized representative of the incident and provide recommendations to alleviate the emergency conditions.

The Contractor shall review new and existing projects and facilities for industrial hygiene concerns, recommend appropriate controls, and work with NASA management, resident agency management, or other contract management, as appropriate.

The Contractor shall document all requests for IH support in the CMMS.

D. Reporting Requirements

The Contractor shall develop, maintain, and ensure the following deliverables are accurate and timely as defined in the specific DRD(s) listed below:

- DRD SA06-3.3 *Industrial Hygiene Program Annual Plan*
- DRD SA07-3.3 *Industrial Hygiene Program Quarterly Report*
- DRD SA08-3.3 *Food Service Sanitation Inspection Report*

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
3.3.1 Industrial Hygiene			

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
IH Inspections	The Contractor shall conduct workplace IH inspections to address occupational issues in all facilities. Inspections shall include, but are not limited to, the review of chemical use, employee chemical exposure, and the review of contractor-written health programs (this shall include all NASA contractors, including those who have their own Occupational Health Programs).	550-750	100% of inspections complete.
Food Service Inspections	The Contractor shall inspect all food service facilities, including food-vending operations, to monitor compliance with required applied sanitary practices and provide recommendations to the responsible operating organizations. The Contractor shall submit a Food Service Sanitation Report in accordance with DRD SA08-3.3.	84 inspections	100% of inspections complete.
Investigations	The Contractor shall investigate employee complaints of potential threatening workplace hazards immediately. The Contractor shall coordinate with safety, medical, facilities management, and engineering staff (as appropriate) to resolve issues.	400 investigations	100% of the investigations shall occur no later than 48 hours within receipt of the complaint.
IH Triennial Audit	The Contractor shall provide support for the NASA IH triennial audit to include preparing approximately seven (7) binders that include objective evidence for each question listed on the annual NASA HQ IH Program questionnaire.	Once every three (3) years	No instance of not supporting the audit when requested by the Government.

3.3.2 Health Physics

A. Scope

The Contractor shall implement and maintain a Health Physics Program.

B. Limitations, Restrictions, and/or Special Conditions

Each professional and technical member of the Health Physics (HP) staff shall possess an academic degree in the discipline and shall be certified by the National Registry of Radiation Protection Technologist (NRRPT) and/or possess an equivalent combination of education, experience and training suitable to the responsibilities of their position. At least one health physicist shall have an American Board of Health Physics (ABHP) certification (comprehensive practice) or an equivalent level of training, education, and experience.

C. General Requirements

The Contractor shall:

1. Within 60 calendar days of contract start, implement and oversee a comprehensive HP Program in accordance with NPR 1800.1, *NASA Occupational Health Program* and the applicable documents listed in PWS Section 3.0, taking into consideration the unique processes and situations applicable to the specific NASA sites. This shall also include the development, implementation, and maintenance of HP programs, plans, and procedures that are in compliance with all applicable Federal, state, and local regulations and requirements.
2. Submit a *HP Program Annual Plan* in accordance with DRD SA09-3.3 and a *HP Program Quarterly Report* in accordance with DRD SA10-3.3 to the NASA HP Program Manager.
3. Provide and maintain trained personnel to act as a Radiation Safety Officer (RSO) to represent NASA on the Nuclear Regulatory Commission (NRC) licenses and perform the RSO responsibilities as outlined in NPR 1800.1.
4. Perform inventory verification activities and area surveys and audits for all identified radiation sources in use or in storage on NASA property. Maintain an accurate inventory of, and accountability for, all sources of harmful radiation owned or operated by NASA or used on NASA property. The Contractor shall have this inventory available upon request by the Government.
5. Provide supportive and advisory services (including supporting the NASA Radiation Protection Committee meetings) to NASA and their respective contractors regarding compliance with Federal and state regulatory requirements.
6. Maintain radiological emergency response capability including personnel, equipment, instrumentation and supplies. Conduct training exercises.
7. Ensure that all offsite calibration facilities utilized by the Contractor have appropriate licenses. All laboratory analyses and calibrations shall conform to appropriate American National Standards Institute (ANSI) or other recognized standards.

8. Perform radio assay for identification and qualifications of radionuclides in biological specimens and potable water samples as furnished by the Occupational Medicine staff or the Industrial Hygiene staff.
9. Perform malfunction analyses of radiological equipment and recommend corrective measures and repairs. Advise users on the operations, maintenance, and repair of radiological instrumentation and equipment. Minor maintenance will be performed. The manufacturer or other qualified source will perform major repair(s).
10. Supply and distribute radiation caution signs, labels, notices, and instructions in accordance with Federal regulations.
11. Document all requests for HP support in the CMMS.

D. Reporting Requirements

The Contractor shall develop, maintain, and ensure the following deliverables are accurate and timely as defined in the specific DRD(s) listed below:

DRD SA09-3.3 *Health Physics Program Annual Plan*
 DRD SA10-3.3 *Health Physics Program Quarterly Report*

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
3.3.2 Health Physics			
Radiation Mishap Investigations	The Contractor shall immediately investigate all radiation mishaps (including close calls) and institution of immediate corrective action to prevent reoccurrence.	Zero (0)	100% of the investigations shall occur no later than forty-eight (48) hours within receipt of the complaint.
Laboratory Inspections	The Contractor shall inspect/survey all laboratories onsite to ensure compliance with NRC regulations.	Thirty (30) inspections	100% of inspections complete.
Radiation Evaluations, Inspections, Sampling, Analysis, Audits, and Surveys	The Contractor shall perform evaluations, inspections, sampling, analysis, monitoring audits, and surveys to ensure compliance with NASA, Federal, and state regulations for issues related to radiation protection, including, but not limited to, ionizing radiation sources, non-ionizing radiation sources, and selected radiological operations.	Evaluations: fourteen (14) Inspections: Twenty-two (22) Monitoring: audits Twenty-two (22)	No instance of noncompliance with NASA and Federal regulations.

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
		Surveys: Twenty-four (24)	
Health Physics Reports	The Contractor shall prepare all Health Physics Program reports to external agencies or organizations as required by law and transmit to the appropriate agency. The Contractor shall compile and complete all reporting requirements and correspondence for the NRC. The Contractor shall prepare correspondence for submittal by NASA to other internal NASA organizations or other parties.	Ten (10) – fifteen (15) reports	No instance of reports/correspondences not being submitted when required and/or requested.
HP Triennial Audit	The Contractor shall provide support for the NASA HP triennial audit to include preparing approximately seven (7) binders that include objective evidence for each question listed on the annual NASA HQ HP Program questionnaire.	Once every three (3) years	No instance of not supporting the audit when requested by the Government.

3.4 Environmental Services

A. Scope

The Contractor shall provide environmental services in support of NASA, NASA contractors, and tenant organizations. The Contractor shall provide all environmental services required to meet NASA compliance with all applicable Federal, state, and local laws, permits, and permit conditions, Presidential Executive Orders, NASA Policy Directives, and NASA SSC/MSFC Procedural Requirements.

B. Limitations, Restrictions, and/or Special Conditions

Except where otherwise specified, all environmental samples collected as a requirement of this contract shall be analyzed by a state certified laboratory. For SSC, samples will be submitted to the NASA Environmental Laboratory at SSC for analysis. The Contractor shall also ensure that all waste handled offsite, as well as onsite, is properly characterized with an appropriate waste stream number assigned.

The Contractor shall establish and accomplish a program that ensures all necessary environmental regulatory specifications and criteria are met throughout the contract and that

waste generated is minimized. The Contractor shall have the professional environmental personnel available to respond to unplanned workplace environmental concerns (e.g., spills) and for prompt (within 10 minutes) response to unannounced outside regulatory inspections. The Contractor shall assist with NASA audits of tenant environmental compliance and provide technical support as required.

C. General Requirements

Work shall be in compliance with all applicable Federal, state, and local laws, permits and permit conditions, Presidential Executive Orders, NASA Policy Directives, and NASA SSC/ MSFC Procedural Requirements. All new permits, renewals, modifications, updates, or waivers shall be documented per DRD EN26-3.4, *Permits and Waivers Report*. Personnel conducting the work shall hold necessary training/certifications. Maintenance and operations of the environmental systems and equipment are covered in Section 6.0 of this contract. One of these systems includes the SSC potable water system, which provides drinking water to the site tenants via two permitted wells: MS0230015 (Base Side) and MS0230052 (Area 9). In order to ensure compliance with Mississippi Department of Health (MSDH) and SSC permit requirements for potable water systems, the Contractor shall submit documentation in accordance with DRD EN01- 3.4, *Public Health Water Supply Survey & Vulnerability Assessment*; DRD EN02-3.4, *Water System Survey* and DRD EN25-3.4, *Groundwater Usage Report*.

D. Reporting Requirements

The Contractor shall develop, maintain, and ensure the following deliverables are accurate and timely as defined in the specific DRD(s) listed below:

DRD EN01-3.4	<i>Public Health Water Supply & Vulnerability Assessment Report</i>
DRD EN02-3.4	<i>Water System Survey (Industrial & Potable) Report</i>
DRD EN03-3.4	<i>Environmental Operations and Implementation Plan</i>
DRD EN04-3.4	<i>Environmental Month Status Report</i>
DRD EN05-3.4	<i>RCRA 3016 Reports</i>
DRD EN06-3.4	<i>Federal Facilities Compliance and Inspection Report</i>
DRD EN07-3.4	<i>Title V Air Permit State Fee, Emission Inventory &MAF Cap Emission Compliance Report</i>
DRD EN08-3.4	<i>Title V Air Operating Permits Report</i>
DRD EN09-3.4	<i>CFC and Halona Compounds Reduction and Phase-Out Plan</i>
DRD EN10-3.4	<i>Environmental Integrated Contingency (SSC)/Spill Prevention, Control, and Countermeasures (MAF) SPCC Plan</i>
DRD EN11-3.4	<i>Landfill and Storm Water Reports</i>
DRD EN12-3.4	<i>Landfill & Rubbish Areas Inspection and Methane Monitoring Report</i>
DRD EN13-3.4	<i>Hazardous Waste Report</i>
DRD EN14-3.4	<i>Industrial Solid Waste Report</i>
DRD EN15-3.4	<i>Offsite Treatment, Storage, and Disposal Facility (TSD) Audit Reports</i>
DRD EN16-3.4	<i>Underground Storage Tank (UST) & Aboveground Storage Tank</i>

	<i>(AST) Inventory Report</i>
DRD EN17-3.4	<i>Toxic Release Inventory (TRI) Report</i>
DRD EN18-3.4	<i>Emergency Planning & Right-to-Know Act (EPCRA)/Superfund Amendments Report</i>
DRD EN19-3.4	<i>Pollution Prevention Plan</i>
DRD EN20-3.4	<i>Affirmative Procurement Report</i>
DRD EN21-3.4	<i>National Environmental Policy Act (NEPA) Documentation Report</i>
DRD EN22-3.4	<i>Cultural/Historical Resource Management Plan Report</i>
DRD EN23-3.4	<i>PCB & Pesticides Report</i>
DRD EN24-3.4	<i>Environmental Facility Inspection Report</i>
DRD EN25-3.4	<i>Groundwater Usage Report</i>
DRD EN26-3.4	<i>Permits and Waivers Report</i>
DRD EN27-3.4	<i>CERCLA Oversight and System Operations Report</i>
DRD EN28-3.4	<i>Environmental Management System (EMS) & Compliance Audits Report</i>
DRD EN29-3.4	<i>Environmental and Energy Functional Review (EEFR) and EMS Audit</i>
DRD EN30-3.4	<i>Construction Storm Water Inspection & Certification Report</i>
DRD EN31-3.4	<i>Environmental Resource Document (ERD) Plan</i>
DRD EN32-3.4	<i>Discharge Monitoring Report</i>
DRD EN33-3.4	<i>Air Emissions for RICE Engines Report</i>

3.4.1 Environmental Management

A. Scope

The Contractor shall perform environmental management in accordance with site specific *Environmental Operations and Implementation Plan (AS60-OI-002-MAF & SPR 8500.2)* and updated in accordance with DRD EN03-3.4. The NASA Center Environmental Officers are the single points of contact with all regulatory agencies concerning NASA and tenant environmental management issues, respectively, such as: regulatory interpretation, compliance reporting, inspections and spills or releases. The Senior NASA individual onsite or designee will approve all permit applications/modifications, reports, and documents prepared by the Contractor for submittal to Federal, state, and local agencies.

B. General Requirements

The Contractor shall:

1. As required, support the NASA environmental program for each site, to include but not limited to, environmental data calls; internal and external inspections and audits; environmental permit applications, modifications, and updates; and technical support necessary to meet environmental permit and regulatory requirements.
2. Maintain all legal and regulatory environmental documentation.

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3. Provide expertise in the areas of air emissions management, hazardous and solid waste management, waste water & storm water management, and potable water management to ensure compliance with local, state, and Federal laws and regulations, as well as permit requirements.
4. Submit documentation detailing the results of hazardous and controlled waste management, pollution prevention, spill response, storm water management, and air management activities in accordance with DRD EN04-3.4, *Environmental Monthly Status Report*.
5. Provide a single interface with MSFC Environmental Office on Resources Conservation and Recovery Act (RCRA) Corrective Action issues and MAF onsite support as required. MSFC Environmental Office will be responsible for managing and administrating the RCRA Corrective Action Program (site remediation clean-up activities) at MAF.
6. For SSC, submit documentation detailing information relating to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and Federal Facility compliance in accordance with DRD EN05-3.4, *RCRA 3016 Report* and DRD EN06-3.4, *Federal Facilities Compliance and Inspection Report* respectively.
7. Operate MAF environmental systems and equipment, including, but not limited to: the Treatment, Storage and Disposal Facility (TSDF) (Building 159), Chemical Storage Facility (Building 221), the Horizontal Recovery Well, Dense Non-Aqueous Phased Liquid (DNAPL) Trench, the Air Stripper (Pump and Treat Facility), and the Emergency Water Well.
8. Operate SSC environmental systems and equipment, including, but not limited to: Hazardous Waste Handling Facility (Building 2210), Drum Staging and Recycling Facility (Building 7021), and four (4) Pump and Treat Facilities (Buildings 2208, 2211, 2418, and 3308); also document compliance per DRD EN27-3.4, *CERCLA Oversight and System Operations Report*.
9. Identify and interpret changes/impacts to existing and new environmental requirements applicable to the two sites. If applicable, submit impacts and recommendations to the NASA Center Environmental Representative for evaluation.
10. Develop, maintain, implement, and review/update work instructions, organizational issuances processes, and policy/procedures to ensure compliance with NASA Environmental Permits and Regulatory requirements.
11. Provide environmental expertise in support of engineering design review packages.
12. Provide guidance and monitoring of site construction projects for proper implementation of environmental requirements.
13. Identify environmental permit and implementation strategies for both site operations.

14. Promote environmental awareness within each site community. Examples include, but are not limited to, Earth Day, training programs, sustainability related forums or events, and articles and other informational notices.
15. Support NASA site operations and HQ Environmental Working Group meetings to include, but not limited to, Environmental Management System (EMS) regulatory, National Environmental Policy Act (NEPA), Pollution Prevention, Affirmative Procurement/Green Purchasing etc.
16. Maintain and provide updates to the two site *Environmental Resource Document Plans*, DRD EN31-3.4 in accordance with NPR 8580.1, *NASA Environmental Policy Act Management Procedures and Requirements*.

3.4.2 Environmental Management System (EMS)

A. Scope

The Contractor shall implement and maintain the NASA Environmental Management System (EMS) for both sites, in accordance with NPR 8553.1, *NASA Environmental Management System*, SPR 8500.1, *Environmental Management System Procedural Requirements* and AS60-OI-002, *MAF Environmental Management System (EMS)*.

B. General Requirements

1. The Contractor shall work with each Center NASA EMS Representative to ensure the framework of the EMS is in place and operational at both sites. This shall include, but not be limited to, identifying priority environmental aspects and impacts, establishing objectives, and targets consistent with the Center Environmental Policy and Environmental Management Programs (EMPs), coordinate and conduct EMS Steering Committee meetings, implementing a corrective action program, performing internal audits, communicating both internally & externally, and support management reviews.
2. The EMS shall be in conformance with Federal requirements and in accordance with NPR 8553.1, *NASA Environmental Management Systems*. For SSC, the Contractor shall provide support to the Center ISO 14001 certification, to both the internal and external audits, and including provision of auditors for the internal audits. The Contractor shall also document compliance in accordance with DRD EN28-3.4, *EMS and Compliance Audits* and DRD EN29-3.4 *EEFR and EMS Audit*.
3. The Contractor shall perform work in a manner that conforms to all appropriate Environmental Management Programs and Operational Controls identified by agency, organization, or facility EMS, and shall provide monitoring and measurement information as necessary for the agency, organization, or facility to address environmental performance relative to environmental and sustainability goals.

4. In the case of a nonconformance, the Contractor shall respond and take corrective action based on the time schedule established by the Center NASA EMS Representative.

3.4.3 Air Emissions Management

A. Scope

Air Emissions management involves overall coordination of the NASA SSC and MAF air compliance programs, which include the requirement to remain current with Federal and state air regulations and trends, and to provide overall strategic guidance in the maintenance of current air permits and the acquisition of new air permits and/or modifications with a focus of maximum flexibility for NASA operations and programs.

B. General Requirements

The Contractor shall:

1. Provide input to NASA and regulatory officials on air emissions issues that could potentially affect NASA's ability to support current and future programs.
2. Compile data needed to document compliance with air permit monitoring, recordkeeping, and reporting requirements. For SSC, the Contractor shall maintain a monthly air emissions inventory database and prepare a Title V State Summary Fee Report in accordance with DRD EN07-3.4; as well as a Title V Air Operating Permits Report in accordance with DRD EN08-3.4.
3. Provide annual emission inventory data for all emissions sources. Develop and maintain a Refrigerant Management Program for any equipment maintained containing Ozone Depleting Substances (ODSs) in accordance with DRD EN09-3.4, *Chlorofluorocarbon (CFC) and Halona Compounds Reduction and Phase out Plan*.
4. Immediately report to the Center NASA Environmental Office any deviations from air permit requirements (i.e., estimated durations, estimated emissions, probable cause, corrective actions, and preventive measures).

3.4.4 Wastewater and Storm Water Management

A. Scope

Wastewater and Storm Water Management involves the overall coordination of wastewater and storm water at both sites. This effort includes staying current with Federal and state water regulations and trends, and providing overall strategic guidance in the maintenance of current and acquisition of new discharge permits with a focus on maximum flexibility for site operations and programs.

B. General Requirements

The Contractor shall:

1. Notify the Center NASA Environmental Office of any new or modified process wastewater discharges and ensure any process wastewater can be treated and/or meet the permit limits and discharges to the sanitary sewer meet local, state, and Federal agreements, and permit requirements – for example MAF must meet the requirements of the New Orleans Sewage and Water Board MAF Industrial Process wastewater discharge agreement.
2. Maintain and update the SSC *Environmental Integrated Contingency and Spill Prevention, Control, and Countermeasures (SPCC)* Plan at MAF in accordance with DRD EN10- 3.4, for all hazardous material or petroleum product tanks.
3. Notify Center NASA Environmental Office of any new or modified hazardous materials or waste storage areas, storage yards, construction sites, sandblasting activities, materials handling areas, fueling areas, equipment parking areas, and equipment/vehicle washing activities.
4. At MAF, the Contractor shall prepare and submit waste water/storm water discharge monitoring data in accordance with DRD EN32-3.4, *Discharge Monitoring Report*.
5. Ensure compliance with both sites' storm water management programs. For SSC, the Contractor shall conduct Storm Water inspections and document compliance in accordance with *DRD EN30-3.4, Construction Storm Water Inspection and Certification Report*.

3.4.5 Waste Management

A. Scope

Waste Management activities involve staying current with Federal and state regulations and trends and providing overall strategic guidance in the maintenance of current waste permits and the acquisition of new permits with a focus on maximum flexibility for NASA operations and programs. The Contractor shall be responsible for data input/review, reports generation, training and other support requirements for the existing databases used for tracking of hazardous materials, hazardous waste, and other solid waste at the two sites.

B. General Requirements

The Contractor shall:

1. Properly characterize all hazardous waste that is generated onsite with an appropriate waste stream number.
2. Identify all new or modified hazardous or controlled waste producing activities and

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ensure that the Safety Data Sheet (SDS) and waste profile documentation data is accurate, updated, and maintained.

3. Maintain the responsibility for and control of all NASA generated industrial and hazardous waste from initial generation to final disposal offsite. The Contractor shall ensure waste is managed in compliance with site permits, as well as local, state and Federal laws, and regulations.
4. Identify, approve, and manage site and program generated NASA hazardous waste and petroleum, oil, and lubricant (POL) wastes year round for all satellite accumulation areas (SAAs) and ninety (90) day storage areas. Transport hazardous waste and petroleum, oil, and lubricant (POL) wastes to the Treatment, Storage, and Disposal Facility (Building 159) for MAF and Building 2210 for SSC.
5. Provide overall management of the permitted Treatment, Storage, and Disposal Facility (TSDf), Building 159, at MAF.
6. Prepare and ship all hazardous, non-hazardous, and other solid waste offsite for disposal. For SSC, non-hazardous and other solid waste/refuse is managed and transported to the onsite permitted landfill and rubbish site. Therefore, the Contractor shall submit the appropriate documentation to ensure compliance with SSC's landfill operating permit to include DRD EN11-3.4, *Landfill and Storm Water Report* and DRD EN12-3.4, *Landfill and Rubbish Areas Inspection and Methane Monitoring Report*.
7. Manage all solid waste/refuse containers site-wide to ensure there are no materials or components in the containers that are not considered solid waste or refuse. If unauthorized dumping is detected, report immediately to the NASA Center Environmental Officer.
8. At MAF, the Contractor shall prepare and sign for the Hazardous Waste Manifest to ensure RCRA and Department of Transportation (DOT) compliance for shipping of all waste offsite.
9. Provide support and technical consultation for spill response and clean-up...
10. Prepare and submit a report on hazardous waste in accordance with DRD EN13-3.4, *Hazardous Waste Report*, and on non-hazardous solid waste in accordance with DRD EN14-3.4, *Industrial Solid Waste Report*.
11. Conduct audits of offsite treatment, storage, and disposal facilities in accordance with DRD EN15-3.4, *Offsite Treatment, Storage and Disposal (TSD) Facility Audit Report*.

3.4.6 Hazardous Waste Operations

A. Scope

The Contractor shall provide operation of the permitted hazardous waste storage facility in support of NASA operations and programs at each site (Building 159 at MAF, Building 2210 at SSC). At MAF, the Contractor shall remove waste from the Satellite Accumulation Areas (SAAs) and the ninety (90) day storage areas upon request from generators and transport to Building 159. At SSC, hazardous waste is removed from SAAs and transported to the ninety (90) day storage area for offsite shipment.

B. General Requirements

1. In-General

The Contractor shall:

- a. Perform inspections as required per local, state and Federal regulations, and permit requirements. For SSC, provide documentation per DRD EN24-3.4, *Environmental Facility Inspection Report*. For MAF, compliance inspections with non-conformances shall be documented and trended in SheTrak.
- b. Deliver drums, containers and labels to the generator for accumulation of waste.
- c. Maintain a hazardous waste inventory log of incoming drums and containers at Bldg. 159 for MAF and Bldg. 2210 for SSC.
- d. Consolidate compatible waste streams.
- e. Segregate drums into appropriate locations for storage in the Treatment, Storage, and Disposal Facility Building 159 at MAF. At SSC, the 90-day storage facility, Building 2210, shall be utilized.
- f. Crush empty containers, compact rags, and other approved items as applicable to support waste minimization efforts.
- g. At SSC, oily rags shall be laundered for recycling and reuse.
- h. Coordinate and sample waste in drums for characterization as required.
- i. Prepare lab packs (per DOT requirements) for transport and disposal.
- j. Prepare waste for offsite shipment (per DOT requirements) and disposal which includes proper labeling, manifesting, placarding, verifying contacts and loading trucks.
- k. Maintain an accurate and up to date inventory for all hazardous waste stored in the Hazardous Waste Storage Buildings (Building 159 at MAF & Building 2210 at SSC).

2. Storage Tanks

The Contractor shall:

- a. Coordinate and sample waste in storage tanks for characterization as required.
- b. Inspect, drain, and clean tank containment systems.
- c. Perform transfers of waste solvents, etc., from storage tanks to drums and/or tank trailers.
- d. Clean chemical and petroleum storage tanks as required or prior to maintenance activities.
- e. For **SSC**, conduct an inventory of all Above Ground and Underground Storage Tanks in accordance with DRD EN16-3.4, *UST & AST Inventory*.

3. Miscellaneous

The Contractor shall:

- a. Empty dust collectors as required, site-wide.
- b. Pick up photochemical and biomedical waste.
- c. Demonstrate proficient use of hand tools, pumps, drum handlers, drum de-headers, drum compactors, and associated equipment necessary to perform assigned tasks safely.
- d. Operate forklift, hand truck, and/or drum dolly to move drums as necessary.

3.4.7 Spill Response and Clean-up

A. Scope

The Contractor shall provide emergency response and clean-up for chemical spills and releases of regulated hazardous wastes and materials.

B. General Requirements

The Contractor shall:

1. Be responsible for all aspects of spill response (i.e. clean up, removal, and disposal) except for the actual cleaning of any flight hardware adversely affected by the spill. The Contractor shall not clean flight hardware unless written permission is received from the

responsible party.

2. Maintain a spill response capability 24 hours a day, 7 days a week, and 365 days per year. Response personnel shall mobilize immediately upon notification of a spill and immediately begin conducting spill scene containment and response actions.
3. Provide properly trained personnel capable of handling level A, B, C, and D type PPE spill response and clean-up onsite as defined by 29CFR1910. Spill cleanup includes any non-hazardous substances/materials, hazardous substances/materials, and blood borne pathogens. In addition, at MAF, the Contractor shall coordinate with the New Orleans Fire Department (NOFD) for spill response requiring level A Personal Protective Equipment (PPE).
4. Provided a spill incident report to the Center NASA Environmental Officer (EO). The report shall include, but not be limited to, the potential root cause, chemical, and amount spilled.
5. Perform area and equipment decontamination.
6. Participate in spill response drills and operations as required.

3.4.8 Other Environmental Activities

A. Scope

The Contractor shall perform other environmental activities as defined below.

B. General Requirements

1. Hazardous Materials Management

The Contractor shall:

- a. Track, control, manage, and inventory all hazardous materials used onsite.
- b. Perform routine inspection of chemical storage areas to ensure compliance with chemical management requirements.
- c. Prepare and submit annual Toxic Release Inventory and SARA Tier II Reports for NASA and NASA contractors in accordance with DRD EN17-3.4., *Toxic Release Inventory (TRI) Report*, and DRD EN18-3.4, *Emergency Planning and Right to Know Act (EPCRA)/Superfund Amendments and Reauthorization Act (SARA)/Tier II Report*, respectively.

2. Pollution Prevention (P2) Program

The Contractor shall:

- a. Develop, implement, and maintain a pollution prevention plan in accordance with DRD EN19-3.4, *Pollution Prevention Plan*, for the two sites.
- b. Identify, research, and seek to implement P2 projects.
- c. Develop, implement, and manage a recycling program compliant with applicable Executive Order (EO) 13514, *Federal Leadership in Environmental, Energy, and Economic Performance* that ensures compliance with the two sites' requirements. The recycling program shall include, but is not limited to, mixed paper, plastic and glass bottles, aluminum cans, telephone books, and cardboard. The Contractor shall ensure that recyclables are removed from the Contractor-determined centralized locations as defined in PWS 5.2 and transported to a recycling/reuse facility. The Contractor shall supply properly sized containers at numerous collection points throughout SSC and MAF.
- d. Develop, implement, and manage an affirmative procurement/green purchasing program compliant with EO 13423 & 13514 and NPR 8530.1, *Affirmative Procurement Program and Plan for Environmentally Preferable Products*. The Contractor shall provide a comprehensive report on all affirmative procurement items purchased in accordance with DRD EN20-3.4, *Affirmative Procurement Report*.
- e. Provide administration and data input for the NASA Environmental Tracking System (NETS) to include, but not limited to, P2 activities, recycling, affirmative procurements, green purchasing, waste diversion, audits, and all other environmental information required by NASA HQ Environmental Management Division (EMD).

3. National Environmental Policy Act (NEPA)

The Contractor shall provide guidance, direction, and support for the site NEPA program as they specifically apply to and impact activities or projects in accordance with NPR 8580.1 and shall maintain/update the site Environmental Resource Document in accordance with DRD EN31-3.4, *Environmental Resource Document Plan*. The Contractor shall conduct assessments and document NEPA reviews for all new construction projects or facility modifications to determine if a Categorical Exclusion, Environmental Assessment, or Environmental Impact Statement (EIS IDIQ Only) is required in accordance with DRD EN21-3.4, *National Environmental Policy Act (NEPA) Documentation*. The Contractor shall prepare these documents for the Center NASA EO signature.

4. National Historic Preservation Act (NHPA)

The Contractor shall provide guidance, direction, and support for cultural resources management at both sites. The Contractor shall be responsible for implementation of NHPA requirements for

site buildings and structures that are determined to be potentially eligible for inclusion in the national register of historic places. The Contractor shall support compliance with the National Historic Preservation Act and support NASA Cultural Resources Management Panel activities. The Contractor shall maintain and update both sites natural and cultural resources management plan in accordance with DRD EN22-3.4, *Cultural and Historic Resources Management Plan*.

5. NASA Environmental Tracking System (NETS)

The Contractor shall be responsible for input of all data into NETS, including, but not limited to: Pollution Prevention activities; Spills, Inspection Activities, and Non-Compliance actions; Hazardous Waste data; Permit Status; Staffing data; Recycling; Affirmative Procurement; CFC/Halona consumption; Non-Hazardous Solid Waste; RCRA and NEPA activities; EMS information; and any other environmental related activities required by HQ EMD. All data shall be reviewed and approved by the NASA EO or designee prior to official submittal.

6. Toxic Substance Control Act (TSCA)

The Contractor shall ensure compliance with the TSCA while providing guidance, direction, and management of all equipment and the storage and disposal of all waste containing Polychlorinated Biphenyls (PCBs). The Contractor shall prepare and submit a report on the use of PCBs in accordance with DRD EN23-3.4, *Polychlorinated Biphenyl (PCB) & Pesticides Report*.

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
3.4 Environmental Services			
<p>Title V Air Permit State Summary Fee Report (SSC) & Annual Emission Cap Compliance Report (MAF)</p>	<p>Maintain monthly air emissions inventory database and prepare <i>Title V State Summary Fee & Emissions Inventory (SSC) and Annual Cap Emission Compliance (MAF) Report</i> per DRD EN07-3.4.</p>	<p>SSC: Annual Reports for two Title V air permits MAF: Annual Cap Compliance (3 Reports)</p>	<p>In accordance with DRD. All documents must be complete, accurate, maintained/updated, and readily accessible by NASA. No fines or penalties; no notice of violations or any other deficiencies as a result of data submissions and/or reports.</p>
<p>Air Program</p>	<p>SSC has a Title V Air Permit MAF is a Synthetic Minor with the following Permits: 1. Primary Production Process 2. Utility Point Source 3. Ground Water Air Stripper 4. Super Light Ablator (SLA)</p>	<p>SSC: Two (2) Title V air permits mods MAF: Two (2) Permit</p>	<p>Adhere to local, state, and Federal requirements. Ensure flexibility in permits to support current and future NASA requirements, as well</p>

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
	Process.	Modifications	as site commercial customers/tenants. All documents are complete, accurate, maintained, and readily accessible by NASA. No fines or penalties, no notice of violations or any other deficiencies as a result of data submissions and/or reports.
PCB Management Status Report	Maintain the facility PCB Inventory and submit an annual report per DRD EN23-3.4, <i>PCB & Pesticides Report</i> .	One (1) Annual Report each site	In accordance with DRD
Quarterly Surveillance Inspections for cultural and historical sites	Conduct quarterly surveillance inspections of NASA owned properties at two sites in accordance with the Historic Preservation Program Plans for each site. Provide to the Center NASA Historic Preservation Officer pictures of the historical facilities for incorporation into the update of the Culture and Historic Resource Management Plan per DRD EN22-3.4.	SSC: Quarterly: Surveillance Inspections of two (2) historic locations. Annual: two (2) historic locations and three (3) Test Stands (A1, A2, and B1/B2) MAF: Annual Report	In accordance with DRD
Environmental Facility Inspection Implementation Report	Conduct inspections of the Hazardous Waste Handling Facilities (Building 159 & Building 2210) and other facilities per local, state, Federal, and permit requirements. Provide immediate notification to Center NASA EO for non-compliant areas. Provide documentation of these inspections on a quarterly basis, per <i>DRD EN24-3.4 Facility Inspection Report</i> . (Note: DRD not required by	SSC: Quarterly Report thirty (30) of SAAs, one ninety (90)day area MAF: Fifty-four (54) SAAs, five (5)	In accordance with DRD. All documents are complete, accurate, maintained and readily accessible by NASA. No fines or penalties, no notice of violations or any other deficiencies as a result of data submissions and/or reports

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PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
	MAF).	ninety (90) day Areas, and one (1) Permitted TSDF	
Landfill Inspections and Report (SSC Only)	Perform inspections of the storm water system at the SSC <i>Landfill & Rubbish Area</i> and prepare the report per DRD EN12-3.4.	One (1)	In accordance with DRD
Hazardous Waste Collection Shipments and Disposal Activities	Prepare and ship hazardous waste offsite for disposal.	SSC: Thirty (30) satellite areas; six (6) shipments MAF: See Attachment J-10, <i>Reference Library</i> , for metrics.	No hazardous waste to exceed 90-day accumulation time or 1 year for MAF Permitted TSDF.
TSD Audit Reports	Conduct audit of <i>Offsite Treatment, Storage and Disposal Facility (TSDF) Audit</i> per DRD EN15-3.4.	One for each site	In accordance with DRD
NEPA Plans, Applications, Procedures, Reports, and Notifications	Support and prepare records of Environmental Consideration (RECs), Environmental Assessments (EAs) and attend design reviews per DRD EN21-3.4. Note: EA leading to an EIS (IDIQ Only)	SSC: 100 RECs MAF: 50 RECs; one (1) EA	In accordance with DRD. All documents must be complete, accurate, maintained, and readily accessible by NASA. No fines or penalties, no notice of violations, or any other deficiencies as a result of data submissions and/or reports.
Permits and Waivers	Develop/update permit applications for environmental media or waivers per DRD EN 26-3.4, <i>Permit and Wavier Report</i> .	Two (2) permit updates and one (1) wavier	In accordance with DRD
CERCLA Oversight and	Provide the environmental oversight and operation of four (4) Pump &	Annual & Semi-Annual	In accordance with DRD

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PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
<p>System Operations (SSC Only)</p>	<p>Treat (P&T) facilities at the cleanup areas per DRD EN27-3.4.</p>		
<p>Environmental Management System (EMS) & Compliance Audits</p>	<p>Support and participate in EMS audits and assessments internal or external at least twice per year for NASA and its contractors. Develop Cause and Corrective Action for findings. Ensure EMS training is complete. Update aspects & impacts and goals & objectives</p>	<p>SSC: Two (2) annual (one (1) internal and one (1) external) EMS and compliance audits, minimum eight (8) NASA/SSC Facilities and compliance audits for six (6) resident agencies</p> <p>MAF: One (1) internal MSFC conformance audit and one (1) internal compliance audit per year</p>	<p>All documents/data must be complete, accurate, maintained, and readily accessible by NASA.</p>
<p>Corrective Action Report (SSC Only)</p>	<p>Provide Corrective Action Reports (CARs) that are managed in the Center CAR tracking system. Provide updates to the Center NASA Audit Manager for review at least once a month after each EMS audit. Follow up Status Reports should be provided until all Corrective Action Reports (CARs) are implemented and closed per DRD EN28-3.4, <i>EMS and Compliance Audits</i>.</p>	<p>Two (2) – ten (10) data reports maintained in database</p>	<p>In accordance with DRD</p>
<p>NASA Environmental and Energy Functional</p>	<p>Prepare for and participate in the EEFR per DRD EN29-3.4, <i>EEFR and EMS Audit</i>. Input the results of corrective and preventive actions into</p>	<p>SSC: At least two (2) status reports and data will be</p>	<p>In Accordance with DRD</p>

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
Review (EEFR) and Corrective Action Report	NETS and track progress. Provide data to the Center NASA EO for transmittal to NASA HQs per HQs timeline. Follow up with a Status Report until all CARs are closed per DR requirements. Provide CARs that are managed in the Center CAR Tracking System to the NASA Audit Manager for review at least once a month after each EMS audit.	maintained in the NASA designated database (NETS currently) MAF: One (1) HQ Audit every three (3) years	
Spill Response & Incident Report	Respond to Hazardous Material and Hazardous Waste Spills and/or Incidents. Notify the Center NASA EO, or designee, of Hazardous Waste Spills and/or Incidents. Provide data needed to the Center NASA EO, or designee, for NASA’s official notification of EPA’s National Response Center (NRC) and Mississippi Emergency Management Agency and/or LDEQ. If the Center NASA EO or designee is not available, provide notification to regulatory parties and the NRC as appropriate.	SSC: Historically, less than one (1) major spill and fifty (50) minor spills per year MAF: Historically, no major spill and twenty-five (25) minor spills per year	Responds to spill within ten (10) minutes upon notification. Reports spill incident with potential reportable quantity within thirty (30) minutes of awareness to the Center NASA EO. Regulatory notifications within required time frame if Center NASA EO, or designee, is not available for notifications.
Construction Storm water Inspection and Certification (SSC Only)	Prepare construction notice of intent permit applications for the construction efforts NASA and its Contractors, conduct required inspections, and submit reports in accordance with permit and per DRD EN30-3.4.	At least one (1) permit	All documents must be complete, accurate, maintained, and readily accessible by NASA. No fines or penalties, notice of violations, or any other deficiencies as a result of data submissions and/or reports.

3.5 Pressure Vessels and Systems

A. Scope

This section addresses the requirements associated with managing a Pressure Vessels and Systems (PV/S) Certification Program.

B. Limitations, Restrictions, and/or Special Conditions

The Contractor shall ensure personnel performing PV/S analysis have completed, at a minimum, the following training:

1. SSC Requirements

- a. American Society of Mechanical Engineers (ASME) Section VIII Division 1 & 2
- b. ASME B31.3

2. MAF Requirements

- a. ASME Section VIII Division 1
- b. ASME B31.3
- c. ASME Section IV
- d. ASME Section I

3. The Contractor shall acquire and maintain the following stamps:

- a. "U" stamp issued by ASME
- b. "R" stamp issued by the National Board of Boiler and Pressure Vessel Inspectors
- c. "VR" stamp issued by the National Board of Boiler and Pressure Vessel Inspectors

C. General Requirements

The Contractor shall comply with the requirements of NPD 8710.5, *Policy for Pressure Vessels and Pressurized Systems*; NASA-STD-8719.17, *NASA Requirements for Ground-Based Pressure Vessels and Pressurized Systems (PV/S)*; MWI 8710.1, *Inspection and Certification Process for Pressure Vessels and Systems*; and SPR 1740.1, *Pressure Vessel and Pressurized System Procedural Requirements* to ensure the structural integrity of pressure vessels and pressurized systems that are listed in Attachment J-10, *Reference Library*. The Contractor shall perform PV/S procedures in accordance with NASA-STD-8719.17, *NASA Requirements for Ground-Based Pressure Vessels and Pressurized Systems (PV/S)*, to include, but not limited to, conducting periodic inspections and tests; reevaluating certification status when changes occur; maintaining certification data packages as official quality records; performing material evaluations; performing non-destructive tests including ultrasonic, penetrant, radiographic evaluation, and acoustic emission; and maintaining operating records.

The Contractor shall submit a *PV/S Inspection Annual Plan and Report* in accordance with DRD SA11-3.5. The Contractor shall comply with all requirements of National Consensus Code and

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Standards as defined in NASA-STD 8719.17; provide Non-Destructive Examination (NDE) disciplines in support of PV/S certification/inspection efforts; and provide engineering evaluation and analysis in support of PV/S certification and after repairs/alteration of PV/S. The Contractor shall perform configuration management on PV/S in accordance with PWS Section 4.2.2. The Contractor shall enter PV/S schedule/inspection data in CMMS and verify data is entered correctly.

D. Reporting Requirements

The Contractor shall develop, maintain, and ensure the following deliverables are accurate and timely as defined in the specific DRD(s) listed below:

DRD SA11-3.5 *Pressure Vessel/Systems Inspection Annual Plan and Report*

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
3.5 Pressure Vessels and Systems			
In-Service Inspection Plans	The Contractor shall implement and maintain certification and in-service inspection (ISI) plans for fixed PV/S (both new and existing).	SSC: 537 pressure vessels and 1200 piping systems MAF: 69 PV/S	All PV/S certifications must be completed according to plans.
In-Service Inspections	The Contractor shall perform required PV/S ISIs (including certifications, re-certifications, and periodic inspections for fired and unfired PV/S) in accordance with: <ul style="list-style-type: none"> • Applicable ASME pressure vessel or piping standards • Current national consensus codes, standards, and guidelines. 	SSC: 437 of 537 pressure vessels and 1200 piping systems MAF: forty-three (43) PV/S	Complete 100% certification/re-certification of PV/S per scheduled date verified through the CMMS.
Stress Analysis	At MAF Only , the Contractor shall perform PV/S procedures to perform stress analysis in accordance with NASA-STD-8719.17, <i>NASA Requirements for Ground-Based Pressure Vessels and Pressurized Systems (PV/S)</i> .	Forty-three (43) PV/S	Complete all work in accordance with NASA-STD-8719.17.

3.6 Non-Destructive Examination Services

A. Scope

The Contractor shall provide Non-Destructive Examination (NDE) services, including extensive capabilities in the areas of inspection and evaluation services. These capabilities must be state-of-the-art and readily available.

B. Limitations, Restrictions, and/or Special Conditions

The Contractor shall ensure personnel performing NDE services are certified to perform duties in accordance with the qualification levels stated by the American Society for Non-destructive Testing (ASNT) in Recommended Practice No. SNT-TC-1A (latest edition). At a minimum, the NDE personnel shall have a current Level 1 or greater NDE certification, applicable to the NDE discipline being performed. The NDE Examiner(s) shall have a current Level 2 or greater NDE certification to perform the evaluation/interpretation of NDE results. All NDE Examiners shall be certified by personnel with an ASNT certified Level 3 only. The Contractor shall conduct all non-destructive examinations in accordance with applicable American Society for Testing Materials (ASTM), American Welding Society (AWS), ASME, and NASA specifications. The Contractor shall maintain NRC and State Materials licenses and registrations for radioactive materials and radiation producing machines.

C. General Requirements

The Contractor shall provide NDE services, which includes but is not limited to, the following: leak inspections by mass spectrometer; radiography (film and digital) and interpretation; ultrasonic examination; borescope inspection; magnetic particle examination; dye penetrant examination; acoustic emission testing; hardness determination; radiation safety; eddy current; positive material identification (PMI), and other inspection and evaluation work. Available NDE services shall include, but are not limited to, the capability to inspect welds up to six (6) inches thick, certify pressure vessel and systems, evaluate and predict failure, evaluate and detect corrosion, evaluate leakage rates in support of component testing, perform NDE Services for products fabricated and assembled by the Contractor, and provide other inspection efforts required to support operations and maintenance (O&M) activities as defined in PWS Section 6.0 *Facility Operations and Maintenance*, as well as other Government operations. These capabilities may extend to inspection of customer products as requested by the customer on an IDIQ basis. When necessary, the Contractor shall conduct a pre-inspection meeting with the customer to define the requirements and objectives of the inspection, physical and design features of the item, test acceptance criteria, and NDE methods to be employed. The Contractor shall also provide the inspection results and appropriate recommendations to the customer. The Contractor shall perform NDE services using NASA approved procedures.

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
3.6 Non-Destructive Examination Services			
NDE	The Contractor shall perform NDE	SSC: See	No instance of NDE

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
Services	services to support Government activities.	Attachment J-10, <i>Reference Library</i> MAF: Sixty-three (63) Service Requests	services not being performed in accordance with PWS, Section 3.6.

3.7 Contamination and Foreign Object Debris Program

A. Scope

The Contractor shall establish and monitor an overall integrated facility Contamination and Foreign Object Debris (FOD) Program. The FOD Program shall contain clearly defined user(s)/tenant(s) roles and responsibilities for dealing with contamination and FOD control related items, if applicable. The Contractor shall provide support on an as requested basis (IDIQ) to user(s)/tenant(s) that are responsible for implementing FOD control within assigned dedicated manufacturing areas.

B. General Requirements

The Contractor shall establish and monitor an overall integrated facility Contamination and FOD Program in accordance with SPR 8730.6, *Foreign Object Elimination Program* and AS60-OI-031, *MAF Foreign Object Debris and Contamination Control Program*. The Contractor shall submit a *FOD Prevention Plan* in accordance with DRD RA05-3.7.

NOTE: The Core requirement is for MAF only.

C. Reporting Requirements

The Contractor shall develop, maintain, and ensure the following deliverables are accurate and timely as defined in the specific DRD(s) listed below:

DRD RA05-3.7 *Foreign Object Damage/Debris (FOD) Prevention Plan*

4.0 ENGINEERING AND MANUFACTURING SUPPORT SERVICES

A. Scope

The Contractor shall be responsible for providing engineering, engineering support tasks, manufacturing, and testing services. The NASA Technical Authority (TA) model is considered a foundation of the engineering requirements of this effort and is considered an integral part of the engineering scope.

Engineering disciplines include, but are not limited to, the following: Aeronautical Engineering, Aeronautics, Aerospace Engineering, Astronautical Engineering, Astronautics, Astronomy, Astrophysics, Biomedical Engineering, Ceramic Engineering, Ceramics, Chemical Engineering, Chemistry, Civil Engineering, Computer Engineering, Computer Science, Earth and Planetary Science, Electrical Engineering, Electronics Engineering, Geology, Geophysics, Industrial Engineering, Materials Engineering, Materials Science, Mathematics (Pure or Applied), Applied Mechanics, Engineering Mechanics, Mechanical Engineering, Metallurgical Engineering, Metallurgy, Meteorology, Nuclear Engineering, Nuclear Engineering Physics, Oceanography, Optical Engineering, Physics, Applied Physics, Engineering Physics, Space Science, Structural Engineering, Welding Engineering or other appropriate physical science or engineering fields.

Engineering support tasks shall include, but are not limited to, the following: drafting, documentation maintenance, site-wide facility planning, cost estimating, design services, sustaining engineering, SSC propulsion test support, modeling, analysis, MAF manufacturing support, construction and demolition.

Facility/base support shall consist of typical institutional type services including, but not limited to, engineering services supporting the following typical environments: buildings, office spaces, warehouses, shops, roads, bridges, canals, docks, electrical substations, conference rooms, cafeterias, steam plants, waste storage plants, waste lagoons, and emergency response facilities. Typical engineering support to industrial type systems includes, but is not limited to, engineering services supporting the following typical industry systems: HVAC, electrical, mechanical, potable water, industrial water, sewage, structural, civil, architecture, fire, building alarms, lighting, generator, steam, chemical, and materials.

Manufacturing support is primarily at MAF and includes manufacturing and fabrication support for NASA flight hardware, software projects, and other user(s)/tenant(s) operations that are performed.

Testing support is required at SSC and includes support to all activities for a test program to include, but not limited to, test stand buildup, checkout, activation, testing, post-test activities, data reviews, and demolition. An overall description of SSC test area capabilities and operations is depicted in SSTI-8080-0013, *Test Facilities Capabilities Handbook – Volume I*. The Contractor shall use appropriate sections of this document as a guide for understanding the SSC requirements.

The Contractor shall conduct technical meetings (weekly at SSC, monthly at MAF) for

coordination of activities, to provide NASA with status updates, and discussion of project aspects. The Contractor shall support other technical meetings (i.e., Facility Review Boards (FRBs), Configuration Control Boards (CCBs), Project Control Boards (PCBs), Material Review Boards (MRBs), and other board participation meetings, as outlined/requested in this and all other sections of the complete PWS).

Technical Authority

Technical Authority (TA) is the engineering parallel to program/project management and safety and mission assurance, with the goal of achieving balance in implementing safe and successful projects. It defines the delegation of responsibility for setting and enforcing technical requirements from the Office of the Administrator to the Center Directors and then down through the Center organizations to individuals in the Engineering Directorate and SMA Directorate. On technical matters, the assigned TA provides an organizationally and financially independent voice, equal to programmatic authority. The Engineering TA resides in an engineering organization, is matrixed to support the program or project, and coordinates the engineering activities, including discipline engineers as required.

The NASA Office of the Chief Engineer (OCE) is the office of primary responsibility for the implementation and conduct of TA across NASA.

- **SSC** - the Center Director is the final TA. The SSC Center Director has delegated specific responsibilities to the NASA SSC Chief Engineer as implemented in SPLN-1200-0002, *SSC Engineering Technical Authority (TA) Implementation Plan* and the NASA SSC SMA Director as implemented in SPLN-1200-0003, *SSC Safety and Mission Assurance Technical Authority Implementation Plan*. Both Engineering and SMA TAs provide insight and communication on behalf of the Health and Medical Technical Authority (HMTA), where appropriate.
- **MAF** - the NASA MSFC Center Director is the final TA. The MSFC Center Director has delegated specific responsibilities to the MSFC Engineering organization in MSFC IMSC-PLAN-006, *MSFC Technical Authority Implementation Plan*.

All SSC/MAF/MSFC NASA organizations, including supporting contractors, are expected to support this technical authority model.

B. General Requirements

The Contractor shall:

1. Designate a counterpart to the NASA Chief Engineer as the Contractor's single engineering technical authority liaison.
2. Participate in Center-level forums in the process of TA.
3. Exercise technical conscience by raising technical issues that have safety implications to their direct supervision, Safety and Mission Assurance office, designated project

customer and/or systems technical authorities, and NASA SMA.

C. References: (all reference documents per latest revision)

- NASA-STD-8719.9, *Standard for Lifting Devices and Equipment*
- NPR 1440.6, *NASA Records Retention Schedules*
- NPR 7120.5, *NASA Program and Project Management Processes and Requirements*
- NPR 7120.7, *NASA Information Technology and Institutional Infrastructure Program and Project Management Requirements*
- NPR 7123.1, *NASA System Engineering Processes and Requirements*
- NPR 7150.2, *NASA Software Engineering Requirements*
- NPR 2210.1, *Release of NASA Software*
- NPR 8820.2, *Facility Project Requirements*
- MSFC IMSC-PLAN-006, *MSFC Technical Authority Implementation Plan*
- MSFC-SPEC-164, *Cleanliness of Components for use in Oxygen, Fuel and Pneumatic Systems*
- MSFC-STD-3535, *Standard for Propellants and Pressurants used for Test and Test Support Activities at SSC and MSFC*
- RPTSTD-8070-0001, *Surface Cleanliness Standard of Fluid Systems for Rocket Engine Test Facilities of the NASA Rocket Propulsion Test Program*
- SSTD-8070-0001-CONFIG, *SSC Facilities Engineering Documentation Standard*
- SSTD-8070-0002-CONFIG, *SSC Facilities Drafting Manual*
- SSTD-8070-0003-CONFIG, *SSC Preparation of Procurement Specifications*
- SSTD-8070-0004-CONFIG, *SSC Preparation of Construction Specifications*
- SSTD-8070-0009-CONFIG, *SSC Preparation of Form SSC-625, Certificate of Completion (CoC)*
- SSTD-8070-0098-SHOP, *John C. Stennis Space Center Machine Shop Tolerances*
- SSTD-8070-0126, *Tubing Systems for Facility Systems, Special Test Equipment and Aerospace Hardware*
- SCWI-5100-0001, *SSC Procedures for Initiating the Purchase of Supplies and Services*
- SCWI-8080-0001, *Propulsion Test Project Management*
- SCWI-8810-0001, *John C. Stennis Space Center, Center Operations Design & Construction Project Management Division Project Planning, Design and Construction Work Instruction*
- SOI-1201-0001, *John C. Stennis Space Center Engineering and Test Directorate Management/Administrative Controls and Reviews*
- SOI-8074-0001, *Protection of Critical Information Resources*
- SOI-8080-0007, *Test Site Drawings*
- SOI-8080-0008, *Documentation and Configuration Control of Test Complex Software*
- SOI-8080-0009, *E&TD Design Reviews and Deliverables*
- SOI-8080-0012, *Requirements Development and Tracking*
- SOI-8080-0015, *John C. Stennis Space Center Configuration Control of Technical Systems*
- SOI-8080-0016, *John C. Stennis Space Center Material and Process Control for Propulsion Test Facilities and Systems*

- SOI-8080-0022, *Control of Customer Property*
- SOI-8080-0026, *Storage Control of Spares, Materials, and Program Support Equipment*
- SOI-8080-0027, *John C. Stennis Space Center Engineering and Test Directorate Operations Work Control*
- SOI-8080-0029, *Contractor Interface/Access*
- SOI-8080-0030, *Contamination Prevention and Sample Control Procedure*
- SOI-8080-0039, *Control Systems Validation*
- SOI-8080-0040, *Test Area Access Control*
- SOI-8080-0041, *Systems and Test Integration*
- SOI-8080-0047, *Calculation of Key Number, Uncertainty and Recall Interval for Pressure Transducers*
- SOI-8080-0051, *Engineering Analysis*
- SOI-8080-0052, *John C. Stennis Space Center Software Life Cycle and Development Process*
- SOI-8080-0055, *John C. Stennis Space Center Protection of Sensitive Customer Information*
- SOI-8715-0002, *John C. Stennis Center Engineering and Test Directorate Process Safety Management Program*
- SPLN-1200-0002, *SSC Technical Authority (TA) Implementation Plan*
- SPR-1440.1, *SSC Records Management Program Requirements*
- SPR-8830.3, *SSC Facilities Project Manual*
- STP-8810-0018, *Technical Procedure for Field Maintenance Contamination Control and Field Certification of SSC Facility Transfer Systems Cleanliness*
- SSTI-8080-0013, *Test Facilities Capabilities Handbook – Volume I*
- SWI-8834-0001, *Lifting Devices and Equipment Management Instructions*
- SPD-8830.4, *John C. Stennis Space Center Policy Directive Facility Design Engineering Directive*
- SPD 1280.1, *Management System Policy*
- SPD 8830.2, *Configuration Management of Site-Wide Operational and Repair Documentation (SORD) and Test Site Baseline Drawings*
- AS60-OI-10, *Design Control of Facility Projects*

4.1 Design Engineering

A. General Requirements

The Contractor shall provide design engineering support for various institutional, test, and manufacturing facilities per SPD-8830.4 and AS60-OI-10. Contractor tasks shall include defining/outlining the architecture, components, modules, interfaces, test approach, procedures, and data for a component, subsystem, or system to satisfy specified requirements. Included are the reviews necessary to validate the design at the preliminary, detailed, and critical design levels. Also included are the tasks associated with designing/developing documentation and operational procedures for development, checkout, activation, and controlled operation of the component, subsystem, system, and/or end product. Design will conform to applicable industry, Agency, and site-wide standards as listed in Attachment J-10, *Reference Library*.

The Contractor shall be responsible for the tasks associated with design solution development activities, including alternative solution development, technical modeling and analysis, and design development and reviews. Key outputs of this element include drawings, specifications, procedures, and design solutions.

The contractor shall maintain the design cost at a maximum of 6% of the construction budget, unless otherwise approved by the Government.

B. Reporting Requirements

The Contractor shall develop, maintain, and ensure the following deliverables are accurate and timely as defined in the specific DRD(s) listed below:

- DRD FA01-4.1 *Facility Proposed Project Plan*
- DRD FA02-4.1 *Design Project Status Reports/Charts*

4.1.1 Preliminary Concepts and Trade Studies

NOTE: Effort in PWS Section 4.1.1 is primarily IDIQ, with the exception of preliminary concepts and trade studies in support of maintenance projects with a total cost of less than \$50,000 as referenced in PWS Section 6.2.2, *Corrective Maintenance*.

The Contractor shall conduct a wide range of preliminary engineering, including conceptual designs and engineering trade studies.

The Contractor shall conduct and/or support special studies such as concept development, requirements studies, engineering studies, trade studies, operations research, predictive modeling, component and system failure analysis, feasibility, and applicability of new methods and processes.

The Contractor shall perform and/or support tasks associated with developing multiple solutions to the extent that stated objectives may be supported; that technical, economic, and management approaches can be assessed; and that different concepts with the same, or similar objectives may be assessed for their relative merits. Included are the activities necessary to resolve or minimize logistics problems identified during concept development, verify preliminary design and engineering, build prototypes, accomplish necessary initial planning, fully analyze trade off proposals, and support proposal briefings/meetings. The objective is to validate the choice of alternatives and to provide the basis for determining whether or not to proceed and in which direction to proceed.

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
4.1.1 Preliminary Concepts and Trade Studies			
Special	Conduct and/or support special studies	Ten (10)	Special studies

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
Studies	such as concept development, requirements studies, engineering studies, trade studies, operations research, predictive modeling, component and system failure analysis, feasibility, and applicability of new methods and processes.		provided in an acceptable format and on schedule per customer's request.

4.1.2 Facility Planning for Construction of Facilities

NOTE: Effort in PWS Section 4.1.2 is Core. Workload indicators in performance of this section are referenced in Section 1.2, *Technical Management*, Table 1.2, *Formulation Tasks*.

The Contractor shall perform planning for Construction of Facilities (CoF) facility projects. Planning shall include but not be limited to:

1. Preparing and submitting NASA Form 1509/1510 (project approval document) to NASA and maintaining a copy of the approved NASA Form 1509 authorizing the project (required for projects greater than \$50,000).
2. Development of project requirements documents and defining project outfitting requirements
3. Development/preparation of project plans. These project plans shall include, but not limited to:
 - Background/objective
 - Assumptions
 - Statement of Work/Requirements
 - Acquisition Strategy
 - Design/Construction Cost Estimates and Schedules
 - Stake holders Roles and Responsibilities

The Contractor shall perform CoF facility planning in accordance with DRD FA01-4.1.

4.1.3 Facility Designs

NOTE: Effort in PWS Section 4.1.3 is primarily IDIQ, with the exception of engineering design efforts in support of maintenance projects with a total cost of less than \$50,000 as referenced in PWS 6.2.2, *Corrective Maintenance*.

The Contractor shall provide design engineering resources to perform site-wide facility design services. All designs and studies shall be prepared under the supervision of a professional engineer registered in the state where the relevant facility is located. All designs and studies shall be in compliance with Federal, state, local, and either SSC and/or MAF (where applicable)

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requirements and regulations. The Contractor shall coordinate with the site Safety, Pressure Systems, Environmental, Fire Safety, and Plant Engineering Offices to ensure each design meets the International Building Code, and all other applicable codes, regulations and Government requirements. The Contractor shall ensure all designs comply with applicable law and regulation, including 10 CFR Parts 435 and 436. All new construction and major renovation designs shall be performed in accordance with Leadership in Energy and Environmental Design/New Construction (LEED/NC) guidelines with a minimum certification of silver rating. Modification and Rehabilitation shall follow Leadership in Energy and Environmental Design/Existing Building (LEED/EB) guidelines.

For all CoF project specifications, designers shall use the Specs Intact automated system for preparing standardized facility construction specifications. For projects that will use a performance-based acquisition approach, requirements document shall be prepared using a performance work statement or a statement of objectives.

The contractor shall support sustainable design and construction requirements including, but not limited to, the following functions:

1. Verification and validation that all design and construction projects comply with the sustainability requirements of NPR 8820.2.
2. Track project performance that will capture requirements above and prioritize potential projects based on Life Cycle Cost, Return on investment, or other energy based criteria.
3. Support the monthly sustainability meeting to discuss projects, review Energy project database, and help establish present and future goals for SSC sustainability. Provide reports as needed to support the monthly sustainability meeting.

All designs shall be performed in accordance with SCWI-8810-0001, AS60-OI-10, DRD FA02-4.1, and the approved Project Plan, per Section 4.1.2, #3.

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
4.1.3 Facility Designs			
Engineering Resources	Provide engineering resources to perform site-wide facility design services.	Sixty-five (65) tasks	<p>Designs shall be in conformance with applicable NASA and industry standards.</p> <p>Construction change requests due to design error as compared to total original construction cost estimate shall be less</p>

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
			than five percent (5%) cost.
Project Plans	Project Plans for all designs for SSC and designated designs for MAF, prepared per Section 4.1.2, #3.	90	Project Plans provided within 2 weeks of approved task order or initiated design.
Design Costs	Design costs shall be within the budget in the approved project plan or task order.	N/A	No design cost overrun greater than \$1,500 and 10% of the approved design budget.

4.1.4 Technical System Design

NOTE: Effort in PWS Section 4.1.4 is primarily IDIQ, with the exception of technical system design efforts in support of maintenance projects with a total cost of less than \$50,000 as referenced in PWS Section 6.2.2, *Corrective Maintenance*.

A. Scope

The Contractor shall provide design and design support during all phases of projects in the test and manufacturing areas. This includes design support services during project formulation, design, construction, buildup, activation, testing, and demolition. SSC test areas are described in SSTI-8080-0013, *Test Facilities Capabilities Handbook – Volume I (TFCH)*.

Technical design drawings for the SSC Test Areas/Site are governed by SOI-8080-0007, *Test Site Drawings*; and designs are released in accordance with SOI-8080-0015, *John C. Stennis Space Center Configuration Control of Technical Systems*. Mechanical and Electrical designs shall be in accordance with SOI-8080-0009, *E&TD Design Reviews and Deliverables*.

B. General Requirements

Design engineering is required during all phases of the test program life cycle, including test operations and post-test analysis of test results for all tests including activation tests.

1. Mechanical Design

The Contractor shall provide mechanical design of test facilities, test support systems, and manufacturing systems. The scope of this effort includes system design of cryogenic, non-cryogenic, storage, run, distribution, and disposal systems for existing facilities, Special Test Equipment (STE), and Ground Support Equipment (GSE). These systems are composed of propellant and pressurization system tanks and delivery systems, test article thrust measurement systems, thrust restraints, propellant ignition systems,

component hydraulic and pneumatic actuation systems, environmental and test article purge systems, water deluge systems, and other ancillary and support systems.

2. Electrical Design

The Contractor shall provide electrical design of test facilities, test support systems, and facility systems. The scope of this effort shall include existing facilities, STE, and GSE. This effort includes the design of Data Acquisition Systems (DAS), Control Systems (CS), and Instrumentation. The Contractor shall also provide engineering design and support for the Data Acquisition and Control System (DACS) Lab in SSC Building 4010 to include, but not be limited to: configuration maintenance, daily operations, preliminary testing and checkout, and facility software / hardware upgrades.

Additional technical engineering support requirements may include: propellant discharge plume diagnostics, acoustic monitoring, radiometric monitoring, thermal imaging, and other special and unique measurements.

3. Software Design

The Contractor shall provide software design. The scope of this effort includes existing facilities, STE, and GSE. This effort includes software architecture development, coding, testing, validation, release, and maintenance.

Software developed for test facilities shall conform to the requirements delineated in SOI-8080-0052, *John C. Stennis Space Center Software Life Cycle and Development Process*, NPR 2210.1, *Release of NASA Software*, and released per SOI-8080-0008, *Documentation and Configuration Control of Test Complex Software*.

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
4.1.4 Technical System Design			
Mechanical Design	Provide mechanical design and design support. This includes design support services during project formulation, design, construction, buildup, activation, testing and demolition.	Four (4) design packages	Facility piping and instrumentation designs shall be in conformance with site standards. Less than five percent (5%) rework of schematics or drawings (man-hours vs. original release) due to design or analysis errors/omissions.

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
Electrical Design	Provide electrical design and design support. This includes design support services during project formulation, design, construction, buildup, activation, testing and demolition.	Four (4) design packages	Electrical and instrumentation designs shall be in conformance with site drafting standards. Less than five (5%) rework of schematics or drawings (man-hours vs. original release) due to design or analysis errors/omissions.
Software Design	Provide software design and design support. This includes design support services during project formulation, design, construction, buildup, activation, testing and demolition.	Four (4) design packages	Software shall be in conformance with site standards. Less than five (5%) rework of schematics or drawings (man-hours vs. original release) due to design or analysis errors/omissions.

4.1.5 Analysis and Modeling

NOTE: Effort in PWS Section 4.1.5 is primarily IDIQ, with the exception of analysis and modeling efforts in support of maintenance projects with a total cost of less than \$50,000 as referenced in PWS Section 6.2.2, *Corrective Maintenance*.

A. Scope

The Contractor shall provide resources to perform technical analyses of test and facility systems. Analysis support can range from simple calculations to high fidelity, detailed system level models. The Contractor responsibilities include providing analysis and modeling resources to support structural, mechanical systems (i.e., structural, thermal, and fluid), electrical systems, and software. All analyses should be prepared, reviewed, and documented per SOI-8080-0051, *Engineering Analysis*.

B. General Requirements

1. Mechanical, Electrical and Software Systems Analysis

The Contractor shall:

- a. Provide the technical resources to perform, as required, structural, thermal, fluid, electrical, and software analysis of both test area and facility systems.
- b. Provide engineering analysis of facilities, test systems, and facility operational performance. The scope of this effort includes system analysis of all facility systems, STE, and GSE. The scope of this effort includes system analysis of all facility systems, STE, and GSE as described in 4.1.4(1), Mechanical Design. Specialized analytical capabilities in steady state, transient, and dynamic modeling of reacting and non-reacting flows are required.
- c. Provide engineering support during test operations and post-test analysis of test results for all tests, including activation tests, and provide measurement analysis. Required measurements may include: propellant discharge plume diagnostics, acoustic monitoring, radiometric monitoring, thermal imaging, and other special and unique measurements.

2. Test Facilities Models and Simulations

Modeling and simulation is utilized to obtain data/information as to how something will behave in a particular environment without actually operating it in real life. For example, if one wanted to know how a facility system would perform in response to a particular modification prior to actually implementing the modification, one could use a computer model to simulate actual running conditions so as to forecast the outcome.

In general, a model is software developed using a series of mathematical equations that are programmed to approximate the real system. A simulation of a system is the operation of the model to create a prediction of the performance of the system being modeled. Using the model, parameters are then varied to ensure the conditions can meet all of the performance requirements.

The Contractor shall:

- a. Create and maintain upon customer request models for test facilities including associated documentation and a record of developmental changes. Demonstrate and/or validate the accuracy of analytic models in an applicable test environment. Documentation will include a technical description of the analytic model, its application in test systems design and analysis, and the procedures for its operation. Common government provided software used for analysis and modeling include, but not limited to, ANSYS Co. computational fluid dynamics (CFD) software packages CFX and Fluent, ANSYS Co. finite element analysis (FEA) packages, Bentley Auto-Pipe, Flowmaster, Mat Lab, Thermal Desktop and the in-house developed Rocket Propulsion Test Analysis (RPTA) Models which are Fortran-based codes.

- b. Develop, maintain, and use existing analytic models that describe and evaluate test facilities systems; perform solid model drafting in support of test facility; and test project analysis utilizing commercially available Creo software. Create and maintain documentation for analytical tools.

- c. Create and maintain models using NASA in-house computational fluid dynamics (CFD) computer code to develop a suite of CFD analysis tools for applying these to specific applications for components and sub-systems that require accurate transient analyses. Utilize 3-D CFD models to develop and implement simplified 1-D constitutive models for utilization in RPTA simulations and maintain documentation of the analytical tools and utilization/application methodologies used in executing the engineering design and analysis tasks.

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
4.1.5 Analysis and Modeling			
Analysis	Mechanical, Electrical and Software Analysis.	Six (6) of each discipline (18 task total)	<p>All analytical tools, methodologies, hardware shall be documented in accordance with approved formats in SSC Configuration Management System and in accordance with site drafting standards.</p> <p>Analytical results within five percent (5%) on high fidelity models and ten percent (10%) on low fidelity models relative to applicable test environment.</p>
Models and Analysis	Develop Test Facility Models and perform analysis as required.	Five (5) general model tasks and five (5) Computational Fluid Dynamics model tasks	All analytical models, methodologies, and hardware shall be documented in accordance with approved formats in SSC Configuration Management System

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
			and in accordance with site drafting standards. Analytical results within five percent (5%) on high fidelity models and ten percent (10%) on low fidelity models relative to applicable test environment.

4.1.6 Drafting

NOTE: Effort in PWS Section 4.1.6 is primarily IDIQ, with the exception of drafting efforts in support of maintenance projects with a total cost of less than \$50,000 as referenced in PWS Section 6.2.2, *Corrective Maintenance*.

A. Scope

The Contractor shall provide drafting services.

B. General Requirements

The Contractor shall:

1. Perform schematic and solid model drafting utilizing Business Information Model (BIM)/Revit, AutoCAD, and CREO Parametric software environments.
2. Provide expertise and resources for the creation, modification, and maintenance of all site drawings, including electronic and all existing hardcopies.
3. Generate, maintain, and store all drawings per SSTD-8070-0001-CONFIG, *SSC Facilities Engineering Documentation Standard* and SSTD-8070-0002-CONFIG, *SSC Facilities Drafting Manual*.
4. Store and archive all electronic and hardcopies in accordance with PLDM requirements in PWS Section 4.2.4, *Knowledge Management*.

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
4.1.6 Drafting			
Drafting Services	Provide drafting services per task request: (document retrieval, drafting, peer checks, reproduction, archiving).	Twenty (20) task requests	All drafting will conform to SSTD-8070-0002-CONFIG, SSC Facilities Drafting Manual.

4.2 Product Data and Lifecycle Management

A. Scope

The Contractor shall provide Product Data and Lifecycle Management (PDLM)-related services in support of NASA’s facilities, engineering, construction, maintenance, and project management responsibilities. PDLM consists of disciplined, collaborative processes and systems that plan for, acquire, and control Product Definition Data (PDD) and associated product-related data, including engineering, design, test, procurement, construction, operational, and logistics information throughout the product and data life cycles. PDLM is the set of processes and associated information used to manage the entire life cycle of product data from its conception, through design, test, and implementation, to operation and disposal. PDLM elements include Requirements Management, Configuration Management, Technical Risk Management, and Technical Data Management, as well as the development and sustainment of the virtual PDLM environment and it’s supporting processes and procedures.

The Contractor shall provide all metrics, trend analysis, and PDLM overview information in accordance with DRD CM01-4.2, *PDLM Plan*, and DRD CM02-4.2, *Product Data and Life-Cycle Management (PDLM) Metrics*.

B. Limitations, Restrictions, and/or Special Conditions

The scope of the provided services includes the facilitation and execution of the PDLM-related processes, utilizing the Government provided systems and tools, but does not include the programming or administration of the PDLM-related application(s) or server(s) under the responsibility of NASA and NASA’s Information Technology Service Provider.

The PDLM-related and support applications include, but are not limited to, the NASA-provided Design and Data Management System (DDMS) and SAP. The Computerized Maintenance Management System (CMMS) shall integrate with the PDLM environment. These systems will be the official, authoritative source of data related to the engineering, maintenance, and execution of engineering-related processes as described in other sections of the PWS.

Existing legacy data, as well as data produced in the performance of this contract, including original designs, construction and operational drawings, specifications, reports, and vendor data, must be maintained according to NASA Record Retention policies (SPR1440.1, *SSC Records*

Management Program Requirements, NPR 1440.6H, NASA Records Retention Schedules).

The Contractor shall support and facilitate the management of the product data and product lifecycle process elements for projects, facilities, systems, equipment, utilities (FSEU) and components, utilizing the existing Government provided PDLM System Applications.

The Contractor shall develop and maintain a Product Data and Lifecycle Management Plan (DRD CM01-4.2).

C. Reporting Requirements

The Contractor shall develop, maintain, and ensure the following deliverables are accurate and timely as defined in the specific DRD(s) listed below:

- DRD CM01-4.2 *PDLM Plan*
- DRD CM02-4.2 *PDLM Metrics*
- DRD PT01-4.2 *Capability Handbooks*

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
4.2 Product Data and Lifecycle Management			
Handbooks	(SSC) Maintain and update Facility Capability Handbook, SSTI-8080-0013, <i>Test Facilities Capabilities Handbook – Volume I</i> (TFCH). (MAF) Create a new MAF site/manufacturing handbook and maintain annually.	One (1) each site	Update completed within ten (10) calendar days of the beginning of the Government fiscal year. Updates must be accurate and complete in support of DRD PT01-4.2.

4.2.1 Requirements Management

Requirements management elements relate to the ability to establish, derive, and maintain an agreed-to set of expectations and associated requirements, and to establish the associations to the implementation artifacts used to demonstrate compliance. Requirement and associated Requirement Change Request (RCR) process elements are facilitated within the DDMS.

The Contractor shall support and facilitate the development and management of requirements for projects, FSEU, and components utilizing the existing government provided PDLM System Applications per SOI-8080-0012, *Requirements Development and Management*.

The Contractor shall develop and maintain technical materials, including, but not limited to,

specifications, equipment manuals, appendices, or operating and maintenance instructions. Maintain and update engineering guidelines, standards, and work instructions. The Contractor shall update these documents when changes are requested by the Government and incorporate updated industry consensus standards as they occur.

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
4.2.1 Requirements Management			
NASA SPECSINTACT	Maintain and update the NASA SPECSINTACT.	Nine (9) updates	Updates completed within thirty (30) calendar days of request. Updates must be accurate and complete.
Engineering Updates	Maintain and update engineering guidelines, standards, and work instructions.	Seventy (70) updates	Updates completed within thirty (30) calendar days of request. Updates must be accurate and complete.

4.2.2 Configuration Management

A. Scope

Configuration Management (CM) includes the following five elements, as defined by NASA policies and processes: Configuration Management Planning, Configuration Identification, Configuration Change Management, Configuration Status Accounting, and Configuration Verification.

B. General Requirements

The Contractor shall:

1. Maintain configuration of projects and associated documentation for FSEU and components utilizing DDMS throughout the project’s or facility’s life.
2. Provide configuration management of any analyses, plans, reports, drawings, designs, support material, vendor data, and/or models collected or produced under this contract.
3. Process updates to design packages, engineering or construction release packages, and as-built drawings through the approved NASA CM processes in DDMS.

4. Provide support for updating and periodic review of the SPECSINTACT standard specs.
5. Process Engineering Packages, Board Review Packages, and Change Requests information and data within the DDMS, to include associated support material and associations/attributes within the electronic environment. This requirement includes researching all existing drawings and archived engineering packages to determine those affected by each modification and validation of the processed engineering package for all required elements and approvals (e.g., 1/8" floor plans, fire evacuation plans, etc.).
6. Support review, audit, problem identification, and resolution development of configuration packages and associated data within the DDMS.

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
4.2.2 Configuration Management			
Data and Process Control	Perform the management of the data and process control related to processing and control of design, board review, engineering, and other technical engineering packages. Validate internal audit checks of processes and procedures related to document handling, board process information control, and official documentation archiving, to include, but not limited to, non-routine clerical and administrative functions.	200 meetings 400 filings 40 process internal audits 1,000 phone requests / discussions	No lapses in coverage. All data must be accurate and complete. No validated customer complaints.
Drawing Updates and CAD Support	Coordinate and manage the update of existing 1/8" building plan drawings. Computer Aided Design (CAD) support for core mission requirements. Includes updates to all "As Verified Drawings" prior to start of maintenance work. NOTE: This is an ongoing effort by the Center to update its site-wide drawings.	100 updates 2000 Request	Updates completed within thirty (30) calendar days of request. Updates must be accurate and complete.

4.2.3 Technical Data Management

A. Scope

The Contractor shall use the existing NASA standards, policies, and provided systems to develop any necessary lower-level documentation, such as operating plans and procedures, maintenance and operating instructions, and other types of work instructions. Plans, manuals, reports, procedures, and other technical data shall conform to NASA standards.

B. General Requirements

The Contractor shall:

1. Provide Data Management support services to consist of, but not limited to, technical engineering data management and control, SPECSINTACT management, standards management, parts data management, logistics data management, and engineering/construction package process facilitation and archival activities.
2. Maintain management of design packages, studies, construction/modifications, drawings, reports, plans, and other required engineering data elements generated by or supported by this contract.
3. Provide data filing, management, and retrieval for NASA and NASA tenants (data to include, but not be limited to, vendor data, designs, drawings, plans, data packages, action items, meeting minutes, review material, etc.).
4. Perform management of data related to engineering package processing and validation related to FRBs, CCBs, delegations, and procurement and other release processes.
5. Support data and record retrieval for investigations and impounding as required.
6. Assure all test system and test support facility hardware components are tracked for status, condition, and location.
7. Assure all SSC test area instrumentation within assigned systems and facilities are tracked in accordance with SOI-8080-0019, Calibration /Recall Requirements for Test & Measuring Devices and SPR-8730.4, SSC Metrology and Calibration Control Program.
8. Implement policies and procedures addressing the maintenance, specification, and use of components to provide maximum efficiency and safety.

NOTE: All changes from current policies, procedures, and programs will be coordinated with and approved by NASA before implementation.

9. Utilize and/or provide input as necessary to maintain component-related data as required in NASA standards and notify appropriate personnel of potential impacts to system implementation, operations, and maintenance related to component data and associated management.
10. Manage support material (such as vendor data, drawings, etc.) for components, parts, and equipment within NASA provided systems, to include all metadata and traceability between the items and related data / documentation.

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
4.2.3 Technical Data Management			
Tracking	Components used in systems for which the Contractor is responsible are tracked with proper certifications and calibration.	Between 5500 and 6500 items	No test project delayed due to component certification related issues.
Design and Data Management System	Utilize the Government's Design and Data Management System addressing customer requests; distribute research and documents; provide document archive and retrieval; manage Engineering Modification Instructions; control vendor data; manage work instructions; and maintain current site standards consistent with engineering/industry consensus standards. Facilitate upload/generation and update of data objects in DDMS/CMMS/SAP to maintain current data sets.	110,000 entries	No lapses in coverage. Acceptable response time for all requests. Updates completed within thirty (30) calendar days of request. All data must be accurate and complete.

4.2.4 Knowledge Management

A. Scope

The Contractor shall actively participate in knowledge-sharing activities to ensure mission success and the retention of vital information and lessons learned. Knowledge Management is considered an integral part of work and as such should be supported/performed as a part of all tasks. The Contractor shall to support the Knowledge Management implementation in accordance with NPD7120.6, *Knowledge Policy on Programs and Projects*.

B. General Requirements

The Contractor shall:

1. Provide support gathering, organizing, and sharing knowledge.
2. Support and attend knowledge-sharing sessions across organizations.
3. Actively participate in knowledge-producing activities in order to learn and contribute knowledge to the shared goal of mission success.
4. Gather and incorporate any lessons learned into daily operations and support the

identification and submittal of new lessons learned. Additionally, the Contractor shall complete any corrective/preventive actions identified during the gathering of lessons learned; submit lessons learned to the NASA-provided lessons learned system and to appropriate NASA management.

5. Actively participate in knowledge-sharing activities to ensure mission success and the retention of vital information and lessons learned.

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
4.2.4 Knowledge Management			
Lessons Learned	Maintain and manage lessons learned and dissenting opinion data within DDMS.	Fifteen (15) lesson learned	Inputs must be accurate and complete.

4.3 Technology Development (IDIQ Only)

NOTE: Effort in this PWS section is not part of Core Services and, if determined appropriate, will be authorized by an IDIQ task order.

A. Scope

The Contractor shall provide support for the development of appropriate new technologies, including identification, evaluation, and adaptation of the new technologies into systems for the continual improvement of the systems and their related processes.

B. General Requirements

Working with NASA, the Contractor shall:

1. Provide advanced planning to enable NASA’s capabilities to be at the leading edge of technology.
2. Provide or support technology development activities that improve ground test operations and systems, science, and environmental monitoring.
3. Sustain and enhance capabilities of the SSC Technology Development Laboratory (TDL) including plume effects predictions and monitoring (particularly with respect to test stand safety and operability) and Integrated Health Monitoring Systems (IHMS),
4. Sustain and enhance capabilities of the SSC Data and Control Systems Laboratory (DACS Lab) including support for the development, evaluation, and deployment of new sensor systems, instrumentation systems, automated control systems, real-time facility

modeling and characterization, distributed data networks, and other advanced technology systems as required.

5. Support the assessment and infusion of applicable new technologies into those areas of science and engineering that are at the present limits of commercial availability.
6. Collaborate with other technology development organizations, both external and internal.
7. Provide support to a “new technology” review summary that prioritizes and recommends the most applicable technologies with high return on investment.

4.4 Construction Support (IDIQ Only)

NOTE: Effort in this PWS section is not part of Core Services and, if determined appropriate, will be authorized by an IDIQ task order.

A. General Requirements

The Contractor shall provide construction management services, as well as Surveillance, Inspection, and Engineering Services (SIES) for construction contracts, including pre-solicitation, solicitation, award, construction, and contract closeout activities per DRD FA03-4.4, *Construction Support Quality Plan; Reports/Charts* and in accordance with NPR 8820.2, *Facility Project Requirements*. The Government will provide the Contractor requirements for SIES at the beginning of each construction project.

The Contractor shall execute projects, utilizing either Contractor in-house or subcontract personnel. The Contractor shall utilize subcontracted personnel for 100% of projects except for COR/CO approved deviations.

Construction support activities will vary based on NASA or SACOM construction procurement.

B. Reporting Requirements

The Contractor shall develop, maintain, and ensure the following deliverables are accurate and timely as defined in the specific DRD(s) listed below:

DRD FA03-4.4 *Construction Support Quality Plan; Reports/Charts*

4.4.1 Pre-Solicitation

The Contractor shall be responsible for pre-solicitation activities, which include, but not limited to:

1. Development of SIES worksheet/estimate
2. Assignment of configuration coordination responsibilities

3. Quality check/review of design package
4. Preparation of statement of work
5. Development of a project specific construction monitoring plan

4.4.2 Solicitation

The Contractor shall be responsible for performing solicitation activities, which include, but not limited to:

1. Pre-bid conference
2. Details bids, apparent low bidder
3. Cost estimate and available funds
4. Proposal summary and technical evaluation

4.4.3 Award

The Contractor shall be responsible for performing subcontract award activities, which include, but not limited to:

1. Management and documentation of proposal opening process
2. Development of cost worksheet/bid report
3. Management of Government Furnished Equipment (GFE) required
4. Post award conference

4.4.4 Construction

1. Construction Administration

The Contractor shall be responsible for maintaining contract plans, specifications, field engineering change documents, test data, drawing files, review and approval of submittals, vendor data, correspondence, status reports, progress schedules and contract reports as specified. The Contractor shall also perform other construction administration activities to include but not limited to:

- a. Coordinate all activities with user(s)/tenant(s) to minimize any potential impact to user(s)/tenant(s) activities.

- b. Verify progress by conducting meetings with the construction and the A&E service contractors.
- c. Develop and maintain CoF projects master schedule. Obtain Government concurrence on schedule. Revisions to the CoF projects master schedule require approval of the Government.

2. Field Surveillance and Inspection

The Contractor shall be responsible for conducting onsite surveillance and inspection, expediting and monitoring of all operations associated with assigned projects, and preparing / maintaining files, logs etc. to document project execution activities.

3. Site Coordination

The Contractor shall interface/coordinate with NASA and appropriate NASA contractors to ensure daily and long term schedules, changes, problems, impacts, documentation, and other program/project matters are resolved. The Contractor shall schedule and chair weekly status meetings with subcontractors, A/E contractor's engineering lead, and all pertinent personnel throughout all project phases for all ongoing facilities projects.

4.4.5 Closeout

The Contractor is responsible for performing closeout activities, which include, but not limited to:

- 1. Ensuring all O&M documentation including vendor O&M manuals, vendor as-built drawings, software programs, and equipment parts list has been properly processed and distributed to Contractor assigned O&M organizations
- 2. Ensuring completion of commissioning
- 3. Completion of all activities required and issuing certificate of completion
- 4. Lesson learned tracking
- 5. Warranty transfer

Provide support as referenced in Section 1.2.2 and 4.1.2 of the PWS.

4.5 Testing Services and Support (IDIQ Only)

NOTE: Effort in this PWS section is not part of Core Services and, if determined appropriate, will be authorized by an IDIQ task order.

A. Scope

The Contractor shall supply support for testing services and all activities required for test. These activities include, but are not limited to, test stand/fixture buildup, checkout, activation, test, post-test activities, data reviews, and demolition. The life cycle of a typical project in the test area is defined in SCWI-8080-0001, *Propulsion Test Project Management*.

B. General Requirements

Work on technical systems, test stands and test support systems, and facilities utilized in propulsion testing is performed by authorized Work Authorization Documents (WADs), usually a Test Preparation Sheet (TPS). Discrepancies are documented and worked on Problem Reports (PRs). These documents and processes are defined in SOI-8080-0027, *John C. Stennis Space Center Engineering and Test Directorate Operations Work Control*. Management of covered hazardous systems is defined in SOI-8715-0002, *John C. Stennis Center Engineering and Test Directorate Process Safety Management Program*.

The Contractor is responsible for supporting NASA SSC in maintaining configuration control of all technical systems, test stands, test support systems, and facilities utilized in propulsion testing at SSC in accordance with SOI-8080-0015, *John C. Stennis Space Center Configuration Control Technical Systems*.

Customer-provided drawings, documents, hardware, and sometimes verbal communications can be considered proprietary and/or intellectual property and must be treated as such. The Contractor shall handle customer information in accordance with SOI-8080-0055, *John C. Stennis Space Center Protection of Sensitive Customer Information*.

SOI-8074-0001, *Protection of Critical Information Resources*, defines the guidelines and processes necessary for the safekeeping and security of designated information and information processing equipment used in the propulsion test environment.

The SSC test area is a controlled access area. Processes for gaining access to any of the test facilities in the test area is described in SOI-8080-0040, *Test Area Access Control*.

4.5.1 Test System Assembly and Installation

A. Scope

The Contractor shall be responsible for the activities necessary for products to be fabricated, cleaned, and assembled into a component, subsystem, or system and installed into their test or operational environments. Necessary activities include those associated with preparing for the fabrication and installation of components, systems, and subsystems, including the storage, movement, distribution, maintenance, evacuation, and disposition of materials and related activities.

B. General Requirements

1. Assembly

The Contractor performs tasks associated with the fabrication and installation of test systems and subsystems as required for each test project or modification. This includes fabricating, cleaning, constructing and assembling raw materials into parts, components, or subsystems and installing resulting items into a component or subsystem. Included are the activities associated with joining a number of parts, components, and/or subsystems capable of disassembly together to perform a specific function.

The Contractor shall:

- a. Perform tasks associated with identifying goods and services necessary for the realization of the technical effort.
- b. Fabricate and assemble tubing to include, but not be limited to, field fitting of all tubing, installing appropriate connections, and connecting with all components and subsystems. Tubing at SSC shall conform to SSTD-8070-0126, *Tubing Systems for Facility Systems, Special Test Equipment and Aerospace Hardware*.
- c. Perform shop and field fabrication for the manufacture and/or modification of onsite piping, structures, pressure vessels, equipment, and other various fabrications and assembled items.
- d. Assure all required components have the proper configuration and cleanliness levels; assemble required components as part of systems and subsystems; and enter component information into the appropriate site configuration management system.
- e. Fabricate and assemble electrical systems including data systems, control systems, instrumentation systems, and ancillary systems. Modify or create software as needed to achieve desired requirements.
- f. Ensure that changes required authorizing design and/or construction packages are approved through the configuration management process as described in Section 4.2 of this PWS prior to incorporation of the changes.

2. Installation

The Contractor shall be responsible for performing tasks associated with installing test systems and subsystems as required for each test project and modification.

The Contractor shall:

- a. Install mechanical and electrical test systems and subsystems as required.
- b. Combine validated system parts, components, assemblies, software components, and operator tasks into the desired end product prior to verification, as required for the specific project.

- c. Install end product in the test-environment prior to checkout and activation, as required.
- d. Ensure that changes required authorizing design and/or construction packages are approved through the configuration management process as described in Section 4.2 of this PWS prior to implementation of the changes.

4.5.2 Checkout and Activation

A. Scope

The Contractor shall be responsible for the activities required to verify component, subsystem, system, and integrated systems prior to test integration. Included are the activities required to integrate the validated systems with the item being tested.

B. General Requirements

1. Checkout

The Contractor shall be responsible to perform tasks associated with verifying that the component or subsystem meets the specified requirements.

The Contractor shall:

- a. Validate that the development of an item or system has been completed satisfactorily and has achieved the performance and functional characteristics specified.
- b. Ensure the final configured item complies with the completed operation and support documents. The Materials and Process Control Team (MPCT) will review and approve critical materials used per SOI-8080-0016, *John C. Stennis Space Center Material and Process Control for Propulsion Test Facilities and Systems*.

2. Test Systems Activation

The Contractor shall perform tasks associated with ensuring the system or integrated systems perform to specified requirements prior to test integration activities. Included are activities such as an Activation Test Readiness Review (ATRR), cold flows, system validation and verification activities, and Combined System Validation (CSV) Tests. Activation is performed after construction or modifications and fully demonstrates the system/facility; including verifying that facility performance and operational aspects meet project/system requirements. Activation of mechanical and electrical systems and subsystems are defined in SOI-8080-0041, *Systems and Test Integration*.

The Contractor shall:

- a. Setup, checkout and validate instrumentation and data systems. Calibration requirements are contained in SOI-8080-0019, *Calibration/Recall Requirements for Test & Measuring Devices*. Pressure transducers setup information is contained in SOI-8080-0047, *Calculation of Key Number, Uncertainty and Recall Interval for Pressure Transducers*.
- b. Checkout and validate the Control System per SOI-8080-0039, *Control Systems Validation*.
- c. Participate in and/or develop a Facility Activation Plan (FAP).
- d. Perform mechanical/electrical system setup and securing/shut-down operations for tests, verify system readiness for supporting test activities, perform testing, support facility or test article failure or incident investigations, troubleshoot, perform data reduction, review and validate test results. Examples of mechanical systems activation activities include cleanliness verification, leak checks, and cold flows. Examples of electrical systems activation activities include DAS verification and validation, control system validation, functional readiness tests and redline cut system validation.
- e. All anomalies found in a given system after its activation shall be documented on a Problem Report per SOI-8080-0027, *John C. Stennis Space Center Engineering and Test Directorate Operations Work Control*.

3. Test Integration

The Contractor shall be responsible to support integrated systems activation necessary to demonstrate that all test systems (mechanical and electrical) are operating in unison to accomplish facility performance objectives.

The Contractor shall:

- a. Support installation and inspection of the item to be tested into the test environment, as well as the Test Readiness Review (TRR).
- b. Perform tasks associated with combining validated integrated systems with the item being tested and evaluated.
- c. Verify facility activation readiness for integrated systems testing; provide engineering analysis and corresponding expected systems performance assessments and documentation.
- d. Perform integrated system performance and shut-down operations assessments; support facility off nominal reviews/assessments, failure reviews, or incident investigations; perform troubleshooting; support test engineering data reduction;

and review and validate test results.

- e. Transport and install test articles into the appropriate test stand. The requirements for control and handling of customer property are defined in SOI-8080-0022, *Control of Customer Property*.

4.5.3 Test and Evaluation

A. Scope

The Contractor shall operate of mechanical and electrical systems and subsystems to gather data on test article, system, or hardware performance as required for each project or project modification. This section includes the tasks associated with operating the validated systems and/or test item, and obtaining and evaluating the technical data generated. Testing activity is the span of operations beginning with facility preparation and includes test article/test hardware installation/integration, test control/operations, facility securing, test article removal and concludes with return of the facility to pretest configuration. Operations of these systems are generally performed by a NASA led test team which may include the Contractor, NASA, and the test article contractor. Examples of this type of work include console operations, mechanical and electrical technician operations, problem resolution, stand and system set up, and securing.

B. General Requirements

1. Test Logistics

The Contractor shall perform tasks associated with preparing for and supporting the tests, including tasks associated with items to be tested and the equipment, resources, and consumables required to support the test and evaluation activities. Detailed logistics requirements are in the Logistics PWS Section 2.1 and a description of the propellants and pressurants is contained in SSTI-8080-0013, *Test Facilities Capabilities Handbook – Volume I (TFCH)*.

The Contractor shall:

- a. Manage and coordinate propellant and pressurant requirements and logistics, provide long-range forecasting, ordering, and coordination of delivery, transport scheduling, certification, acceptance, storage, and distribution of propellants and pressurants (both gas, storable, and cryogenic) according to Section PWS 6.1.5.
- b. Ensure the required quantity and quality of commodities is available at each test and/or test facility. Provide planning and forecasting activities for all propellant and consumable products in support of the test operations.
- c. Perform receiving inspections of test hardware, special test equipment, and consumables per the applicable Quality PWS Section 3.2 and/or project specific requirements, instructions and standards.

- d. Transport and install test articles into the appropriate test stand. The requirements for control and handling of customer property are defined in SOI-8080-0022, *Control of Customer Property*.
- e. Manage and operate Ground Support Equipment (GSE).
- f. Manage and control Project/Program spares, materials, and other related equipment per SOI-8080-0026, *Storage Control of Spares, Materials, and Program Support Equipment*.

2. Test Operations

The Contractor shall perform tasks associated with the operation of the validated systems and test items to obtain data on or validate their performance, including pre-test setup activities, test activities, and post-test activities. Testing activity will be performed in accordance with specific work authorization documentation. The test operations phase starts after a successful FRT (if required) and is considered complete after the facility and test article are secured post-test. Test related activities are identified in SOI-8080-0020, *Test Control*.

The Contractor shall:

- a. Perform test article pretest setup and checkout, conditioning, and inspection as required, and install and remove test article instrumentation, as required.
- b. Assist in the resolution of any performance anomaly associated with the test facility or technical issues related to test article and test facility interaction.
- c. Maintain test article data package that may include a history of tests, discrepancies, repairs, serialization of parts, and time/cycle data.
- d. Support test anomaly resolution as requested by NASA and coordinated with the test article contractor.
- e. Prepare test facility mechanical, data, and control systems for subsequent test performance per detailed test requirements, and set up hydraulic, pneumatic, cryogenic, mechanical and electro-mechanical systems, electrical control systems including analog servo controllers, programmable logic controllers (PLCs), digital controllers, event recorders, camera, intercom and other ancillary systems per detailed test requirements.
- f. Set up, checkout, and verify instrumentation and DAS installation and operation per detail test requirements.
- g. Support the diagnoses and troubleshooting of problems associated with any

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component within the end to end instrumentation systems; support the diagnoses and troubleshooting of problems associated with facility mechanical systems involving valves, regulators, filters, relief devices, gauges; and diagnose and troubleshoot control problems within the test facility control systems.

- h. Support Facility Readiness Test (FRTs) with the facility and test article in final configuration. The FRT consists of complete systems operations less propellant flow with data and control systems operation. The results shall be analyzed by the Contractor to ensure facility and systems are performing, as required. All anomalies are to be documented and resolved during this process prior to initiating additional testing.
- i. Prepare and present material for test readiness reviews, and archive results in support of NASA and the customer, substantiating readiness to continue with the test phase.
- j. Review and disposition open items and discrepancies in accordance with SOI-8080-0041, *Projects and Systems Integration* and SOI-8080-0027, *John C. Stennis Space Center Engineering and Test Directorate Operations Work Control*.
- k. Participate in reviews including operational readiness inspections, safety review teams, and independent investigations. The level of participation and responsibility will typically be as an area expert reviewing project designs, procedures, and documentation to reach an independent assessment as to the risk of proceeding with test.
- l. Provide technical and administrative support in assembling information required by the review teams.
- m. Support the loading of propellant run tanks to the required level and condition propellants, run systems, and test article to required temperatures per specific test instructions.
- n. Support final facility adjustments such as master facility panel settings and data system changes as required by specific test instructions and as indicated by FRTs.
- o. Support and/or operate test systems and related equipment safely and efficiently in support of test requirements. Examples of the type of work required include low speed data console operating, high speed data console operating, facility console operating, video operating, anomaly resolution engineering and technician activity, access control, and technician test crew.
- p. Support securing of the test facility and systems after each test, placing each system in a safe mode as directed by the test operations engineer or work authorization document. In the event of an off nominal condition before, during or after the test, implement contingency procedures to secure and safe the test facility and systems.

- q. Inspect the test article and/or facility at the conclusion of each test or test series as required by each project.
- r. Support processing of test data according to requirements specified in the agreed upon requirements documents, IDIQ task order, and customer agreements. Protect processed data in accordance with project customer request and SSC Detailed Operational Procedures for the specified test project.
- s. Manage test related data products produced during test activities and/or the operation of core functions, and store and transmit data in a consistent and organized manner using the appropriate systems. Test related data is defined as low speed, high speed, video, and photographic data.
- t. Disseminate and transmit data according to project requirements, and ensure data security, including protection of proprietary data and information, according to SOI-8080-0055, *John C. Stennis Space Center Protection of Sensitive Customer Information*.
- u. Support sampling activities of systems (gas, cryogenic, hydraulic, etc.) as required per MSFC-STD-3535, *Standard for Propellants and Pressurants used for Test and Test Support Activities at SSC and MSFC*.
- v. Support inspection of test facilities after each test and support efforts to resolve any identified technical issues.
- w. Generate/Review/Process Work Authorization Documents (WADs) and Problem Reports (PRs) in support of Test Operation activities per SOI-8080-0027 *John C. Stennis Space Center Engineering and Test Directorate Operations Work Control*.
- x. Conduct test operations activities per approved Work Authorization Documents (WADs) per SOI-8080-0027, *John C. Stennis Space Center Engineering and Test Directorate Operations Work Control*.

4.5.4 Test Data Analysis and Reviews

A. Scope

The Contractor shall provide engineering analysis support during all phases of test projects. These activities throughout the test project includes, but is not limited to, electrical and mechanical design support, analysis of design, analysis of test results (including activation tests), preparation of data review packages, preparation of final test reports, and software support.

B. General Requirements

The Contractor shall:

1. Provide processed facility and test article data in the required formats.
2. Support analysis of facility and test article data for accuracy and validity; quantify and certify test/measurement accuracy; identify data channels that are invalid; and recommend corrective action.
3. Participate in or conduct the data review and evaluate the data to determine test outcome and to prepare for subsequent testing.
4. Generate Problem Reports (PRs) for any test anomalies or discrepancies identified in execution of the Test Data Analysis and Review services per SOI-8080-0027, *John C. Stennis Space Center Engineering and Test Directorate Operations Work Control*.

4.5.5 Disassembly

A. Scope

The Contractor shall support tasks associated with decomposing and/or disassembling software elements, hardware elements, and common support elements into parts or sub-elements.

B. General Requirements

The Contractor shall support:

1. Return of test facilities and systems to a configuration as specified by the project plan.
2. Disassembly of test articles and other customer furnished equipment as specified by the project plan. Packaging, documentation, and shipping shall be per instructions in the project plan in accordance with the requirements listed in the Logistics PWS Section 2.1 of this PWS.
3. Performance of documented project specific special instructions.
4. Ensure all configuration changes are documented, processed, and approved prior to implementation per requirements provided in Section 4.2 of this PWS.

4.6 Manufacturing and Fabrication Support

The Contractor shall provide manufacturing and fabrication support for NASA, Flight Hardware, Software Projects and other user(s)/tenant(s) operations. This support consists primarily of managing and operating shared manufacturing and fabrication support resources at MAF.

NOTE: If manufacturing services is requested to support NASA flight hardware components or subassemblies builds, the Contractor shall adhere to MSFC Technical Authority oversight/insight.

4.6.1 Management of Shared Manufacturing Areas/Resources

A. Scope

To successfully accomplish manufacturing and fabrication support, the Contractor shall coordinate, communicate and collaborate with the other entities who occupy the manufacturing and fabrication facilities in an independent manner that clearly and unequivocally demonstrates non-preferential treatment for all entities.

The Contractor shall manage shared manufacturing and fabrication areas and resources that multiple user(s)/tenant(s) are required to share. The Contractor shall schedule use of these resources and integrate schedules into the user(s)/tenant(s) production activity plans.

B. General Requirements

The Contractor shall:

1. Ensure the capabilities of the shared manufacturing and fabrication resources are preserved during production and operations down time.
2. Ensure Contractor personnel are made available to user(s)/tenant(s) upon request to provide support for operational activities.
3. Provide recommendations with appropriate supporting analysis and rationale that result in optimal utilization of shared manufacturing and fabrication areas and resources.
4. Perform management of NASA's shared manufacturing and fabrication resources in collaboration with NASA personnel (e.g., the SF01/SF02 MAF Office and MSFC's Engineering Directorate) and user(s)/tenant(s), as necessary to successfully operate and manage. This shall include:
 - a. Coordinating revisions to policies, procedures, and/or methods, as needed
 - b. Developing new procedures, as required
 - c. Developing metrics to ensure proper utilization of resources and continued productivity
 - d. Assisting in defining decision-making processes, conflict resolution, and effective risk management
 - e. Assessing effectiveness of facilities and facility operations, to include, but not limited to, assessments of the following:
 - Equipment/Infrastructure

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- Customer needs
- Processes

5. Provide effective customer management, to include communication with Production Support Systems Manager (PSSM), the MSFC Engineering Directorate, and the MAF Integration and Operations Office (SF02) and:
 - a. Report scheduling and logistics issues and resolutions.
 - b. Ensuring training of personnel, as needed.
 - c. Implement measurements and report metrics for project activities, assuring the shared resources fulfill the requirements of NASA and/or ISO guidelines and procedures, in meeting both the necessary technical competence and management system requirements, such that the shared resources shall consistently deliver technically valid results.

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
4.6.1 Management of Shared Manufacturing Areas/Resources			
Shared Areas/Resources	Manage Shared Manufacturing Areas/Resources.	Eighty-six (86) service requests	Contractor shall manage shared areas/resources with no negative impact to user/customer operations/production plan or significant customer issues expressed at interchanges.

4.6.2 Operations of Shared Manufacturing Areas/Resources (IDIQ Only)

NOTE: Effort in this PWS section is not part of Core Services and if determined appropriate, will be authorized by an IDIQ task order.

A. Scope

The Contractor shall operate the shared manufacturing and fabrication areas and resources that multiple MAF user(s)/tenant(s) are required to share; this shall include, but not be limited to the requirements listed below.

B. General Requirements

1. Chemical Clean Facilities (B103 Chemical Clean Line (L-4) and Precision Cleaning

Areas)

The Contractor shall:

- a. Perform cleaning and refurbishment services for fluid mechanical systems hardware and components including those used in both GSE and flight systems in accordance with MSFC –SPEC-164, *Cleanliness of Components for use in Oxygen, Fuel and Pneumatic Systems* (Upon request, cleanliness shall be certified to levels specified in NASA, Military, or other contractor specifications that are comparable to MSFC-SPEC-164).
- b. Establish and maintain operational procedures for Chemical Clean Facilities.
- c. Perform all cleaning and packaging operations using non-ozone depleting substances except as otherwise specifically called out in specifications and approved by NASA.
- d. Provide engineering services for existing non-CFC cleaning and verification processes.
- e. Disassemble functional components to facilitate cleaning, to allow for the removal of standard replacement parts and soft goods, and to allow for inspection for damaged parts.
- f. Perform decontamination of contaminated system components.
- g. Perform rough cleaning to remove corrosion, dirt, grease, scale, or other contaminants from critical surfaces of systems and individual component parts.
- h. Perform surface treatment such as passivation, pickling, and chemical coating.
- i. Perform precision cleaning in a clean room environment using approved fluids and testing to ensure particulate and Non Volatile Residue (NVR) levels are in conformance with the cleanliness level specified by the user.
- j. Functionally test components to ensure that performance standards are met, as specified by the Government, Contractor, or vendor drawings.
- k. Hydrostatically and pneumatically test tubing, hoses, and compressed gas cylinders.
- l. Before initiating field cleaning operations, establish a controlled area and coordinate with all personnel in the vicinity of the cleaning operations area.

2. Heat Treat Facility (B103 J-7)

The Contractor shall:

- a. Maintain sufficient skill and knowledge of heat treating capabilities, equipment testing, and analysis to provide necessary technical guidance or expertise for future Projects and/or Users.
- b. Provide capabilities, including annealing, stress relieving, normalizing, hardening, solution treating, aging, and tempering using electric and gas heated ovens and furnaces under controlled (vacuum and special gases) and non-controlled environments.

3. Production Machine Shop (B103), including the 27' Niles

The Contractor shall:

- a. Fabricate and assemble R&D products, hardware and equipment, test fixtures, and prototype/mockup hardware or end items made from various materials that are within the MAF manufacturing capability.

NOTE: Some fabrication operations require adhesive bonding technology.

- b. Refurbish (re-machine, reprocess, and/or clean) existing hardware.
- c. Plan, schedule, track, and perform status manufacturing tasks through the fabrication shops.
- d. Support design, fabrication, test equipment, test article, facilities, and tooling.
- e. Perform manufacturing planning to accomplish the requirements of the tenant/user orders.
- f. Support tenant/user in the design and development of tooling, processes, procedures and techniques necessary to optimize the manufacture and assembly of demonstration, development, qualification, and flight type articles.
- g. Provide the ability to accept and read CAD models from a variety of CAD/Modeling systems.
- h. Perform machining operations which include operations performed on lathes, mills, grinders, shapers, and electrostatic discharge machines.

NOTE: Selected machines are computer numerically controlled (CNC) and can be programmed both off- and on-line.

- i. Perform foam machining/shaping, to include operations of conventional or CNC equipment in the foam shop or controlled areas of the production machine shop.

- j. Perform sheet metal processes, including shearing, bending, punching, and fastening.
- k. Fabricate high and low-pressure metal tubing and flexible hose systems.

4. Bldg. 110 Vertical Assembly), Bldg. 114 High Bay Building, Bldg. 113 and 190 Tank Farm

The Contractor shall:

- a. Manage tenant/user operations for the multi-program environment, to include assembly, hardware installation, SOFI (spray on foam insulation) application, SOFI machining, primer application, inspection, and Thermal Protection System (TPS) closeout activities associated with large/major flight hardware components.
- b. Provide support to the engineering test operator/conductor.
- c. Operate on a limited basis fixed and mobile equipment and associated testing and servicing systems, including desiccant unit (services Bldg. 110 cell D) is located in Bldg. 113.

5. NCAM

Operator(s) for NCAM equipment shall be certified for operation of NCAM equipment (MTS Friction Stir Welding Machines, Ingersoll Advanced Fiber Placement Machines, Ingersoll High Speed Machining Center, Forest Line High Speed Machining Center, Matec Non-Destructive Evaluation System, and Mentronor Portable Dimensional Inspection System).

6. Bldgs. 130 and 318

The Contractor shall provide overall/ complete facility operations of buildings 130 and 318. Tenant/user operations consist of the following:

- a. Bldg. 130 operations include treating cork, washing micro-balloons, and weighing all the dry ingredients necessary to make SLA (super light ablator).
- b. Bldg. 318 functions include automatic mixing of SLA materials, application, cure, test, and machining super-light ablators (SLA) on small components.

5.0 SITE SERVICES

A. Scope

This section of the PWS identifies fixed price site services consisting of Food Services; Custodial Services; Grounds Maintenance and Integrated Pest Services; Occupational Health Services; Internal and External Communications; Education Services; Energy Management, Controls and Operations; and Fire Protection Services.

The Contractor shall furnish all personnel, supervision, management, equipment, materials, tools, transportation, supplies, uniforms and other items or services necessary to provide the site services identified in this section unless otherwise specified in the PWS or in Attachment J-9, *Government Furnished Property*.

B. Limitations, Restrictions, and/or Special Conditions

Uniforms shall be required for employees tasked to provide services specified in the following sub-sections:

- 5.1, *Food Services*
- 5.2, *Custodial Services*
- 5.4, *Occupational Health Services*
- 5.5, *Internal and External Communications (Visitor's Center)*
- 5.8, *Fire Department*

5.1 Food Services

A. Scope

This section of the PWS defines the requirements associated with providing food services at SSC and MAF as a "No Cost Contract" business that covers the cost of operation with food sale revenue. To achieve this, the Contractor shall deliver a variety of prepared meals that are attractive, healthy, and reasonably priced to ensure a strong customer base.

Food service operations will be located at the main dining facility, in Building 1100 at SSC and Building 351 at MAF; along with Building 102, a satellite cafeteria at MAF, using Government furnished facilities, utilities, and equipment. Utensils, silverware, plates, glassware, food trays, and baking/cooking utensils are available for use by the Contractor; however any additional and/or replacement items, and all food, shall be provided by the Contractor.

B. General Requirements

The Contractor shall:

1. Provide Food Service on a commercial retail basis at no cost to the Government, other than the specified Government furnished facilities, utilities, and equipment (Government

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is responsible for repair or replacement) and Government Furnished Property (GFP).

2. Provide diverse specialty food products reflecting local, regional, and national offerings. If offered at **SSC**, breakfast may be of any style. At **MAF**, breakfast shall be served during the hours of 6:30 a.m. – 9:00 a.m. All meat, poultry, and fish/seafood shall be U.S. Government Choice A or better. Offerings shall include low calorie, low fat items on the menus, as well as posting of nutritional information in the serving area.
3. Serve lunch during the core hours of 11 a.m. – 1 p.m. each day with the exception of Federal holidays and any other day approved by the Government. The Contractor is encouraged to expand services and hours as necessary to minimize overall costs and/or maximize revenue.
4. Provide all plastic and carryout items (paper bags, paper cups, forks, spoons, knives, and containers, etc.).
5. Provide purchasers the ability to pay for services with a credit/debit card. (Internet access shall be provided by the Government).
6. Prominently post pricing menus in the food service area and via an electronic website provided by the Government.
7. Adequately meet Government regulatory requirements, complying with all SSC/MAF and Mississippi/Louisiana Department of Public Health Regulations. SSC/MAF uses the current Food and Drug Administration Food Code as guidance document for food inspections.
8. Ensure complete, accurate, and timely status updates and responses to customer inquiries and requests for Food Services.
9. Ensure competent, efficient, and courteous service to all customers.
10. Provide an electronic ability for customers to provide feedback.
11. After use, wipe off, clean, and sanitize table surfaces and sweep/ remove debris from areas.

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
5.1 Food Services			
Food Services	Provide food services at 'No Cost' to the Government other than the specified Government furnished facilities, utilities, and equipment.	SSC: Population 4800; Breakfast: 300 meals daily	No added incurred costs to the Government.

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
		Lunch: 800 meals daily, MAF: Population 3,000; Breakfast: 380meals daily; Lunch: 441 meals daily	
Regulation Compliance	The Contractor shall comply with all SSC/MAF and Mississippi/Louisiana Department of Public Health Regulations regarding Food Service sanitation for all personnel handling/serving food products, including Mississippi Board of Health Division 100, Part 10, as well as applicable sanitation requirements of NPR 1800.1, <i>NASA Occupational Health Program Procedures</i> , and SPR 8715.1, <i>Safety and Health Program Requirements</i> .	Nothing additional	All employee food service certifications shall be current and made available upon request. Adequately meet all Government and state requirements. Immediately address sanitary deficiencies in accordance with SPR 8715.1, <i>Safety and Health Program Requirements</i> and MPR 8715.1, <i>Marshall Safety, Health, and Environmental (SHE) Program</i> .
Customer Satisfaction	a. Ensure competent, efficient, and courteous service to all customers. b. Ensure complete, accurate, and timely status and responses to customer inquiries and requests for Food Services. c. Perform a daily review of customer feedback in an effort to address and correct any discrepancies.	Nothing Additional	No more than 3 validated customer complaints per month.

5.2 Custodial Services

A. Scope

This section defines the requirements associated with providing custodial and recycling collection services to the user(s)/tenant(s) at SSC and MAF. Recycling collection services is limited to the removal of recyclable materials from localized recycling stations, located in building common use areas, to Contractor-determined centralized locations in support of disposal requirements for recyclable materials as specified in PWS Section 3.4.8.

B. Limitations, Restrictions, and/or Special Conditions

Services to the National Center for Critical Information Processing and Storage (NCCIPS) require personnel to have a Secret security clearance. (i.e., SSC Buildings 9313, 9323, 9324, 9325 and 9353).

C. General Requirements

The Contractor shall supply all labor, materials, supplies, equipment, containers, dispensers and cleaning products necessary to perform the work defined in this section. Supplies shall include, but are not limited to, hand soap, hand towels and dryers, trash liners and toilet tissue. Existing dispensers, trash receptacles/containers and localized recycle stations will remain in place and available for continued use. Localized recycling stations are those stations containing one or more containers ~20 gallons/each, located in common use areas. Additional dispensers/containers necessary to fulfill the requirements of this PWS are the responsibility of the Contractor. (e.g., Should the Contractor elect to utilize wheeled and/or larger bins/containers for consolidation of recyclables prior to disposal, the Contractor shall be responsible for providing such). Should dispensers become damaged, inoperative, or unusable, the Contractor is responsible for replacing them. Existing janitorial closets are available for Contractor's use, if necessary.

A *Facilities Services* list is provided in Attachment J-1, Appendix A, *Additional Workload Data*, identifying all facilities requiring custodial and recycling services, along with estimated square footages, etc. The Contractor shall update, and maintain current, this list for future reference in accordance with PWS Section 1.1.3.

Numerous tasks required by this PWS will necessitate moving chairs, furniture, and other items in order to fully accomplish the task. In all cases, when items are moved to accomplish a task, the items will be returned to their approximate original place and position.

During execution of the work, the Contractor shall take special care to protect all Government property including furniture, walls, baseboards, and other surfaces from being used improperly. Accidental splashes shall be removed immediately. The Contractor shall take appropriate action to address needed repairs and/or damage to facilities no later than the workday following the discovery. Any item of a critical, priority, or emergency nature shall be reported immediately upon discovery.

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All equipment shall be cleaned and stored upon completion of daily activities and prior to the conclusion of personnel work shift(s).

It is the intention of NASA to minimize work performed at night in order to meet federally mandated energy conservation goals. Except as may otherwise be specified, all basic work shall be performed between the hours of 6:00 a.m. and 9:30 p.m. However, to minimize inconvenience to both the customers and NASA personnel, some discrete jobs, such as stripping, waxing, or shampooing floors and/or carpets, may be performed outside of the normal work hours. It should be noted that access to certain offices and buildings may be restricted outside the hours of 7:00 a.m. to 3:30 p.m. Access to secured/restricted areas shall be coordinated in advance with the occupant and Protective Services Contractor. When a service is required less than 3 times per week and the time for that service falls on a holiday, the services shall be accomplished on the workday preceding or following the holiday.

On occasion, items too large for trash receptacles will be placed adjacent to receptacles and marked as "TRASH"; such items should be removed and discarded with remaining trash. Additionally, large office moves or special projects/activities may require the need for additional liners or portable bins; upon request, such should be provided temporarily to ensure areas remain debris-free. Any cardboard trash shall be broken down and put in the proper outside recycle receptacles marked for cardboard only.

The Contractor shall ensure that recyclable materials are removed from localized recycling stations and transported to a recycling/reuse facility.

Cleaning of asbestos-containing floor coverings requires special care and attention to not disturb the asbestos. Sanding of asbestos-containing floor coverings is prohibited, and stripping of finishes must be conducted using low abrasion pads at speeds lower than 300 rpm or by wet methods. Damaged asbestos-containing floor tiles shall not be disturbed and shall be reported to Environmental Management. Asbestos Floor Plans for SSC can be found in Attachment J-10, *Reference Library*.

Where specific dates have not been identified for the frequency of a task, the Contractor shall maintain a schedule and make such available upon Government request for review.

Unless specifically addressed in this section (5.2) of the PWS, all industrial areas are required to be maintained clean and orderly by personnel assigned to such areas. In general use spaces (i.e., common use areas, office areas, break rooms, entry ways, meeting areas, restrooms, etc.) located within industrial areas, the Contractor shall comply with the appropriate requirements as specified in this section.

In an effort to encourage pollution prevention & hazardous waste minimization, all cleaning products must comply with NPR 8530.1, *Affirmative Procurement Program & Plan for Environmentally Preferable Products*, EO 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*, and EO 13415, *Federal Leadership in Environmental, Energy, and Economic Performance*. Additional minimum specifications include:

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- Toilet Paper: white, 2-ply thickness, minimum 3.5” wide
- Paper Towels (if applicable): Towels must be adequately absorbent, hold together when wet and have no objectionable odor when wet or dry.

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
5.2 Custodial Services			
Custodial Services		(See <i>Custodial Building List</i> located in Attachment J-1, Appendix A, <i>Additional Workload Data</i>)	<p>Ninety-five percent (95%) of all facilities are without validated customer complaints for the quarter.</p> <p>Services are performed within the timeframes prescribed.</p> <p>No evidence of repeated lapse in service for any required tasks.</p>
Clean Building Entrance Ways and Lobbies	<ul style="list-style-type: none"> a. Remove debris and empty ash receptacles b. Gather and dispose of discarded cigarette butts c. Address spillage or unsafe conditions d. Sweep outside entrances and steps e. Sweep or vacuum entrance way mats f. Empty trash containers and replace torn or soiled liners g. Dust mop and/or sweep floors h. Sweep and damp mop floors i. Vacuum carpeted areas j. Spot clean carpet k. Dust and clean all items, furniture, fixtures, baseboards, door frames, window ledges, and horizontal or vertical surfaces/areas l. Spray buff hard floors at SSC North and South Reception Centers (SSC-7101 and SSC-3101) m. Clean and polish all wood furniture 	<ul style="list-style-type: none"> a. 5 days a Week (5W) b. As needed c. As needed d. 5W e. 5W f. 5W g. 5W h. W i. 5W j. As needed k. W l. 2 times a Month (2M) 	No additional performance standards

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PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
	<p>with an approved wood cleaner, oil and/or polish</p> <p>n. Strip and seal/apply new wax to floors</p> <p>o. Wet extraction clean and pile-lift carpet</p> <p>p. Clean windows inside and out</p> <p>q. Clean glass doors inside and out</p> <p>r. Clean display shelves</p> <p>s. Dust and clean all exposed surfaces of vents, diffusers, and grills</p>	<p>m. M</p> <p>n. Annually (A)</p> <p>o. A</p> <p>p. 2A</p> <p>q. 5W</p> <p>r. 2A</p> <p>s. 2A</p>	
<p>Clean Common Use Areas (reference requirements for Industrial Facilities / Areas)</p>	<p>a. Address spillage or unsafe conditions</p> <p>b. Empty trash containers and replace torn or soiled liners</p> <p>c. Dust mop and/or sweep floors</p> <p>d. Sweep and damp mop floors</p> <p>e. Vacuum carpeted areas</p> <p>f. Spot clean carpet</p> <p>g. Dust and clean all baseboards, door frames, and window ledges</p> <p>h. Dust and clean all items, furniture, fixtures, and horizontal or vertical surfaces/areas</p> <p>i. Strip and seal/apply new wax to floors</p> <p>j. Wet extraction clean and pile-lift carpet</p> <p>k. Clean interior windows and associated window frames</p> <p>l. Clean, disinfect, and polish drinking fountains</p> <p>m. Dust and clean all exposed surfaces of vents, diffusers, and grills</p>	<p>a. As needed</p> <p>b. 5W</p> <p>c. 5W</p> <p>d. W</p> <p>e. 5W</p> <p>f. As needed</p> <p>g. 4A</p> <p>h. A</p> <p>i. A</p> <p>j. A</p> <p>k. 2A</p> <p>l. 5W</p> <p>m. 2A</p>	<p>No additional performance standards.</p>
<p>Clean Stairwells (to include landings)</p>	<p>a. Address spillage or unsafe conditions</p> <p>b. Vacuum and sweep stairs and landings</p> <p>c. Clean and disinfect handrails, doors, door frames, and door access</p>	<p>a. As needed</p> <p>b. W</p> <p>c. W</p>	<p>No additional performance standards.</p>

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PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
	hardware d. Sweep and damp mop stairs and landings e. Dust and clean all baseboards, door frames, window ledges, horizontal or vertical surfaces/areas f. Strip and seal/apply new wax to landings g. Clean interior windows and associated window frames h. Dust and clean all exposed surfaces of vents, diffusers, and grills	d. 2M e. A f. A g. 2A h. 2A	
Clean Elevators	a. Clean elevator cab walls, including elevator buttons, and door tracks b. Sweep and damp mop elevator floors c. Vacuum carpeted areas d. Strip and seal/apply new wax to elevator floors e. Wet extraction clean and pile-lift carpet	a. W b. W c. W d. A e. A	No additional performance standards.
Clean Break Rooms	a. Address spillage or unsafe conditions b. Empty trash containers and replace torn or soiled liners c. Sanitize trash container d. Sweep and dust mop floors e. Damp mop and disinfect floors f. Vacuum carpeted areas g. Spot clean carpet h. Dust and clean all baseboards, door frames, and window ledges i. Dust and clean all horizontal or vertical surfaces/areas j. Clean and sanitize all tables, counters, fixtures, and chairs k. Strip and seal/apply new wax to floors l. Wet extraction clean and pile-lift carpet m. Clean interior windows and associated window frames n. Clean, disinfect, and polish	a. As needed b. 5W c. W d. 5W e. W f. 2W g. As needed h. M i. A j. W k. 2A l. A m. 2A n. 5W	No additional performance standards.

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PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
	drinking fountains o. Clean and re-stock dispensers p. Dust and clean all exposed surfaces of vents, diffusers, and grills	o. 5W p. 2A	
Clean General Meeting Areas and Conference Rooms	a. Address spillage or unsafe conditions b. Empty trash containers and replace torn or soiled liners c. Dust mop and/or sweep floors d. Sweep and damp mop floors e. Vacuum carpeted areas f. Spot clean carpet g. Dust and clean all baseboards, door frames, window ledges, items, furniture, fixtures, and horizontal or vertical surfaces/areas h. Strip and seal/apply new wax to floors i. Wet extraction clean and pile-lift carpet j. Clean interior windows and associated window frames k. Clean glass display shelves l. Dust and clean all exposed surfaces of vents, diffusers, and grills	a. As needed b. 5W c. 5W d. W e. 5W f. As needed g. W h. A i. A j. 2A k. 2A l. 2A	No additional performance standards.
Clean Executive Offices/Areas (SSC only)	a. Address spillage or unsafe conditions b. Empty trash containers and replace torn or soiled liners c. Dust mop and/or sweep floors d. Sweep and damp mop e. Vacuum carpeted areas f. Spot clean carpet g. Dust and clean all items, furniture, office furnishings, fixtures, baseboards, door frames, window ledges, and horizontal or vertical surfaces/areas h. Polish all wood furniture, fixtures, walls, and vestibule doors with an approved wood cleaner, oil and/or polish i. Strip and seal/apply new wax to	a. As needed b. 5W c. 5W d. 2M e. 5W f. As needed g. W h. M i. A	No additional performance standards.

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PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
	floors j. Wet extraction clean and pile-lift carpet k. Clean interior windows and associated window frames l. Clean glass doors inside and out m. Clean display shelves n. Dust and clean all exposed surfaces of vents, diffusers, and grills	j. A k. 2A l. 5W m. 2A n. 2A	
Clean General Office Areas and Control Rooms	a. Address spillage or unsafe conditions b. Empty trash containers and replace torn or soiled liners c. Dust mop and/or sweep floors d. Sweep and damp mop e. Vacuum carpeted areas f. Spot clean carpet g. Dust all baseboards, door frames, blinds, and window ledges h. Dust and clean all items, furniture, office furnishings, fixtures, and horizontal or vertical surfaces/areas i. Clean and polish all wood furniture, fixtures, walls, and vestibule doors with an approved wood cleaner, oil and/or polish j. Strip and seal/apply new wax to floors k. Wet extraction clean and pile-lift carpet l. Clean interior windows and associated window frames m. Dust and clean all exposed surfaces of vents, diffusers, and grills	a. As needed b. 2W c. W d. 2M e. W f. As needed g. 4A h. A i. A j. A k. A l. A m. A	No additional performance standards.
Clean Restrooms and Shower Facilities	a. Address spillage or unsafe conditions b. Empty and disinfect trash containers; and replace torn or soiled liners c. Sweep, wet mop, and disinfect floors d. Vacuum any carpeted areas e. Spot clean any carpeted areas	a. As needed b. 5W c. 5W d. 5W e. As needed f. W g. 5W	In accordance with <i>Blood Borne Pathogens Exposure Control Plan</i> , NPR 8715.1, NPR 1800.1, SCWI 8700-0003, and AS60-OI-025.

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PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
	<ul style="list-style-type: none"> f. Dust and clean all baseboards g. Wash and disinfect all restroom/shower fixtures, commodes, urinals, lavatories, wash stations, shower walls/doors/floors, and sinks h. Clean and disinfect all shower curtains i. Replace shower curtains j. Clean and disinfect partitions, stalls, doors, and wall areas adjacent to wall-mounted lavatories, urinals, and commodes k. Dust and clean all remaining horizontal or vertical surfaces/areas l. Clean and flush floor drains with disinfectant m. Strip and seal/apply new wax to floors n. Wet extraction clean and pile-lift any carpeted areas o. Clean interior windows and associated window frames p. Clean and polish all mirrors q. Clean and polish all bathroom fixtures with an approved polish r. Clean and re-stock dispensers s. Remove graffiti from partitions, stalls, doors, and wall areas t. Clean and disinfect areas contaminated with blood, body fluids, or potentially infectious materials u. Dust and clean all exposed surfaces of vents, diffusers, and grills 	<ul style="list-style-type: none"> h. W i. 2A j. 5W k. 2A l. 5W m. A n. A o. 2A p. W q. M r. 5W s. As needed weekly t. 5W u. 2A 	
<p>Clean Medical Clinic</p>	<ul style="list-style-type: none"> a. Address spillage or unsafe conditions b. Empty and disinfect trash containers; and replace torn or soiled liners c. Empty biomedical trash per section 3.4 d. Sweep, wet mop, and disinfect 	<ul style="list-style-type: none"> a. As needed b. 5W c. W d. 5W e. 5W f. As needed 	<p>In accordance with <i>Blood Borne Pathogens Exposure Control Plan</i>, NPR 8715.1, NPR 1800.1 SCWI 8700-0003 and AS60-OI-025.</p>

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PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
	<p> floors e. Vacuum any carpeted areas f. Spot clean any carpeted areas g. Dust and clean all baseboards, door frames, blinds, and window ledges h. Wash and disinfect all sinks, shower walls/doors/floors, and associated fixtures i. Clean and disinfect all counter surfaces and walls adjacent to wall-mounted sinks j. Dust and clean all remaining items, furniture, office furnishings, fixtures, and horizontal or vertical surfaces/areas k. Clean and flush floor drains with disinfectant l. Strip, scrub, and seal/apply new wax to floors m. Wet extraction clean and pile-lift any carpeted areas n. Clean interior windows and associated window frames o. Clean and polish all mirrors p. Clean and polish all sink and shower fixtures with an approved polish q. Clean and re-stock dispensers r. Clean and disinfect areas contaminated with blood, body fluids, or potentially infectious materials s. Clean, disinfect, and polish drinking fountains t. Dust and clean all exposed surfaces of vents, diffusers and grills Cleaning of entrance ways, lobbies, common use areas, stairwells, platforms, elevators, break rooms, meeting areas, restrooms, office areas, etc., housed within the Clinics shall comply with the requirements of such </p>	<p> g. M h. 5W i. 5W j. A k. 5W l. A m. A n. M o. W p. M q. 5W r. 5W s. 5W t. 2A </p>	

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PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
	as identified elsewhere in this section of the PWS (5.2).		
<p>Clean Childcare Facility (SSC B-2120)</p>	<p>a. Address spillage or unsafe conditions</p> <p>b. Empty and disinfect trash containers; and replace torn or soiled liners</p> <p>c. Sweep, wet mop, and disinfect floors</p> <p>d. Vacuum and disinfect carpeted areas</p> <p>e. Spot clean any carpeted areas</p> <p>f. Dust and clean all baseboards, door frames, blinds, and window ledges</p> <p>g. Dust and clean all horizontal or vertical surfaces/areas</p> <p>h. Strip and seal/apply new wax to floors</p> <p>i. Wet extraction clean and pile-lift carpeted areas</p> <p>j. Clean interior windows and associated window frames</p> <p>k. Clean and polish all mirrors</p> <p>l. Clean and re-stock dispensers</p> <p>m. Remove graffiti from partitions, doors, and wall areas</p> <p>n. Clean and disinfect areas contaminated with blood, body fluids, or potentially infectious materials</p> <p>o. Clean, disinfect, and polish drinking fountains</p> <p>p. Dust and clean all exposed surfaces of vents, diffusers, and grills</p> <p>Cleaning of entrance ways, lobbies, common use areas, stairwells, platforms, elevators, break rooms, meeting areas, restrooms, office areas, etc., housed within the Childcare facility shall comply with the requirements of such as identified elsewhere in this section of the PWS (5.2).</p>	<p>a. As needed</p> <p>b. 5W</p> <p>c. 5W</p> <p>d. 5W</p> <p>e. As needed</p> <p>f. M</p> <p>g. A</p> <p>h. A</p> <p>i. M - common use areas</p> <p>j. 2A</p> <p>k. W</p> <p>l. 5W</p> <p>m. As needed</p> <p>n. 5W</p> <p>o. 5W</p> <p>p. 2A</p>	<p>In accordance with <i>Blood Borne Pathogens Exposure Control Plan</i>, NPR 8715.1, NPR 1800.1 SCWI 8700-0003, and AS60-OI-025.</p>

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PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
<p>Clean Wellness Center/Fitness Training Facility (including locker rooms)</p>	<ul style="list-style-type: none"> a. Address spillage or unsafe conditions b. Empty and disinfect trash containers; and replace torn or soiled liners c. Sweep, wet mop, and disinfect floors d. Vacuum and disinfect carpeted areas e. Spot clean any carpeted areas f. Dust and clean all baseboards, door frames, blinds, and window ledges g. Damp wipe and disinfect all equipment h. Dust and clean all horizontal or vertical surfaces/areas i. Strip and seal/apply new wax to floors j. Wet extraction clean and pile-lift any carpeted areas k. Clean interior windows and associated window frames l. Clean and polish all mirrors m. Clean and re-stock dispensers n. Remove graffiti from partitions, doors, lockers, and wall areas o. Clean and disinfect areas contaminated with blood, body fluids, or potentially infectious materials p. Clean, disinfect, and polish drinking fountains q. Dust and clean all exposed surfaces of vents, diffusers, and grills <p>Cleaning of entrance ways, lobbies, common use areas, stairwells, platforms, elevators, break rooms, restrooms, meeting areas, office areas, etc., housed within the Wellness Center shall comply with the requirements of such as identified elsewhere in this section of the PWS</p>	<ul style="list-style-type: none"> a. As needed b. 5W c. 5W d. W e. As needed f. M g. 5W h. A i. A j. A k. 2A l. W m. 5W n. As needed o. 5W p. 5W q. 2A 	<p>In accordance with <i>Blood Borne Pathogens Exposure Control Plan</i>, NPR 8715.1, NPR 1800.1, SCWI 8700-0003, and AS60-OI-025.</p>

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PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
	(5.2).		
Clean Labs	<p>a. Address spillage or unsafe conditions</p> <p>b. Empty and disinfect trash containers; and replace torn or soiled liners</p> <p>c. Sweep, wet mop, and disinfect floors</p> <p>d. Vacuum carpeted areas</p> <p>e. Spot clean any carpeted areas</p> <p>f. Dust and clean all baseboards, door frames, blinds, and window ledges</p> <p>g. Dust and clean all remaining horizontal or vertical surfaces/areas</p> <p>h. Strip and seal/apply new wax to floors</p> <p>i. Wet extraction clean and pile-lift any carpeted areas</p> <p>j. Clean interior windows and associated window frames</p> <p>k. Clean and re-stock dispensers</p> <p>l. Dust and clean all exposed surfaces of vents, diffusers, and grills</p> <p>m. Spray buff hard floors in the Clean Room of the Fluid Component Processing Facility</p> <p>Cleaning of entrance ways, lobbies, common use areas, stairwells, platforms, elevators, break rooms, meeting areas, restrooms, office areas, etc., housed within lab areas shall comply with the requirements of such as identified elsewhere in this section of the PWS (5.2).</p>	<p>a. As needed</p> <p>b. 5W</p> <p>c. 5W</p> <p>d. W</p> <p>e. As needed</p> <p>f. M</p> <p>g. A</p> <p>h. A</p> <p>i. A</p> <p>j. 2A</p> <p>k. 5W</p> <p>l. 2A</p> <p>m. 2M</p>	No additional performance standards.
Clean Food Service Areas	<p>Clean Food Service, Dining and Cooking Areas (SSC, B-1100, MAF B-351 & MAF 102).</p> <p>a. Empty trash containers and replace torn or soiled liners</p> <p>b. Strip and apply new sealer to</p>	<p>a. As needed & after each meal</p> <p>b. 2A</p>	No sanitary deficiencies attributed to poor custodial services.

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PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
	<p>floors</p> <p>c. Wet extraction clean and pile-lift carpet</p> <p>d. Dust all baseboards, door frames, blinds, and window ledges</p> <p>e. Clean, disinfect, and polish drinking fountains</p> <p>f. Dust and clean all exposed surfaces of vents, diffusers, and grills</p> <p><u>SSC Only:</u></p> <p>g. Address spillage or unsafe conditions</p> <p>h. Sweep and remove spills from floors in serving line and dining areas</p> <p>i. Sweep, wet mop, and rinse floors</p> <p>j. Scrub and spray buff floors</p> <p>k. Vacuum carpeted areas</p> <p>l. Spot clean carpet</p> <p>m. Clean walls around trash containers</p> <p>n. Spot clean walls to ceiling level and remove cobwebs</p> <p>o. Clean and disinfect dining tables and chairs (Periodic wiping of tables between patron use is addressed in PWS 5.1 Food Services)</p> <p>p. Dust, clean, and disinfect all remaining dining room furniture, including planters</p> <p>q. Clean interior/exterior glass doors/walls</p> <p>r. Clean interior windows and associated window frames</p> <p><u>MAF 351 Only:</u></p> <p>s. Clean interior/exterior windows/walls and associated</p>	<p>c. 2A</p> <p>d. 4A</p> <p>e. 5W</p> <p>f. 2A</p> <p>g. As needed</p> <p>h. After each meal</p> <p>i. 5W, after lunch</p> <p>j. W</p> <p>k. 5W</p> <p>l. As needed</p> <p>m. W</p> <p>n. 4A</p> <p>o. 5W</p> <p>p. M</p> <p>q. W</p> <p>r. A</p> <p>s. A</p>	

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PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
	<p>frames</p> <p>Cleaning of restrooms, office areas, etc., housed within the Cafeteria shall comply with the requirements of such as identified elsewhere in this section of the PWS (5.2).</p>		
<p>Clean Areas in Industrial Facilities / Areas</p>	<p>a. Address spillage or unsafe conditions</p> <p>b. Remove debris</p> <p>c. Dust mop sealed concrete and tiled floors (common use areas only)</p> <p>d. Empty trash containers and replace torn or soiled liners (excludes containers for industrial and hazardous waste)</p> <p>e. Wet mop concrete and tiled floors (common use areas only)</p> <p>f. Wet mop epoxy coated floors (common use areas only)</p> <p>g. Seal concrete floors (common use areas only)</p> <p>h. Strip, scrub, and reseal tiled floors (common use areas only)</p> <p>i. Clean, disinfect, and polish drinking fountains</p> <p>Cleaning of entrance ways, lobbies, stairwells, elevators, break rooms, meeting areas, restrooms, office areas, etc., housed within industrial areas shall comply with the requirements of such as identified elsewhere in this section of the PWS (5.2).</p>	<p>a. As needed</p> <p>b. As needed</p> <p>c. 2W</p> <p>d. 5W</p> <p>e. W</p> <p>f. 2W</p> <p>g. A</p> <p>h. A</p> <p>i. 5W</p>	<p>No additional performance standards.</p>
<p>Exterior Window Cleaning</p>	<p>Clean Exterior Windows of all Buildings</p>	<p>Every three (3) years</p>	<p>No additional performance standards.</p>
<p>Provide Cleaning for Special Events</p>	<p>On occasion, provide general custodial services to support special events to include, but not be limited to, sweeping, mopping, and trash removal.</p>	<p>Eight (8)/year</p>	<p>No additional performance standards.</p>
<p>Recyclables</p>	<p>Empty recycle containers as necessary to ensure compliance with the recycle</p>	<p>MAF: 100 recycling</p>	<p>No overflow of recycling containers.</p>

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
	program specified in 3.4.8.2 <u>NOTE: It is the responsibility of office occupants to empty their individual office recycle containers into the localized containers.</u>	stations SSC: 250 recycling stations	

5.3 Grounds Maintenance and Integrated Pest Services

A. Scope

The Contractor shall provide all personnel, equipment, tools, materials, chemicals, fuel, supervision, and other items and services necessary to perform grounds maintenance and integrated pest services defined in this PWS, except as specified in Attachment J-9, *Government Furnished Property*.

B. Limitations, Restrictions, and/or Special Conditions

All equipment, tools, materials, chemicals, fuel, etc., utilized in performance of this PWS section 5.3 shall be removed or stored out of sight when not in use. Government furnished equipment used in performance of PWS Section 5.3 shall be utilized at MAF and SSC only.

Mowing along major roadways (Hwy 607, Shuttle Parkway, Balch Blvd., and Saturn Drive at SSC, and Venus Drive and Mercury Drive at MAF) shall not be permitted between 7:00 a.m. – 8:30 a.m. and 3:15 p.m. - 4:30 p.m.

The Contractor shall avoid the storage of pesticides and herbicides onsite; if stored onsite, quantities shall be limited to no more than a three month supply.

1. Schedule

Mowing and edging adjacent to parked vehicles or parking areas shall be scheduled and coordinated so as to avoid potential damage to vehicles.

During the non-seasonal months, grass cutting shall occur on an as needed basis, unless otherwise specified in this section of the PWS (5.3).

2. Pesticides and Herbicides

The Contractor shall be licensed by the applicable state agency to provide pest control and herbicide application in the categories specified in this contract. All work and equipment/chemicals used shall be in accordance with local, state, and Federal laws and regulations.

C. General Requirements

The Contractor shall remove debris and trash from maintained areas/grounds as required and dispose of in approved containers. At SSC, all rubbish, debris, and trash removed from areas shall be disposed of in appropriate containers onsite or the SSC landfill(s). At MAF, all rubbish, debris, and trash removed from the areas shall be placed in appropriate dumpsters onsite. Holes that may impose a safety hazard or impose difficulty in mowing, etc., shall be filled prior to mowing. Mowing shall be accomplished free of scalping, rutting, and uneven/rough cutting.

Ground Maintenance Frequencies:

<u>MAF</u>	<u>SSC</u>
Area 1 - Weekly	Area 1 – Weekly
Area 2 – Bi-Weekly	Area 2 – Bi-Weekly
Area 3 - Every (2) Months	Area 3 – Monthly
Area 4 – Not Applicable	Area 4 – Yearly
Areas 1& 2 – (Non-Seasonal) As necessary to meet the performance standard with a maximum of 3 cuts	Areas 1& 2 – (Non-Seasonal) As necessary to meet the performance standard with a maximum of 3 cuts

Any Related Requirements and Information:

The MAF Area Mowing Schedule and the SSC Lawn/Road Maintenance Maps are located in Attachment J-1, Appendix A, *Additional Workload Data*.

All drains, ditches, and pipes shall be free of obstruction from accumulated grass clippings, soil, mulch, and/or other materials resulting from performance of work.

1. Maintenance of Landscaped Areas

The Contractor shall:

- a. Apply fertilizer, herbicide, and water to promote healthy plant growth while minimizing the occurrence of undesirable vegetation.
- b. Maintain mulch in plant beds and tree rings that is attractive and pleasing.
- c. Replace damaged plants in plant beds and/or landscaped areas.
- d. Flower beds and Area 1 only: Provide trees and shrubs to replace those lost to insect damage, disease, or drought. Removal of trees and shrubs requiring replacement shall be accomplished within 7 workdays and replacement shall be accomplished within 10 workdays after notification. Replacement trees and/or shrubs need not be located in the same exact location and shall have a 1-year warranty.

2. Integrated Pest Management

The Contractor shall perform pest management services for all active facilities. Pests include, but are not limited to, termites, mosquitoes, crawling insects/rodents (i.e., ants, crickets, cockroaches, gnats, spiders, and mice). Removal of live wild rodents/critters (i.e., moles, possums, raccoons, snakes, feral cats, and other misc. vertebrate pests) are the responsibility of a 3rd party contractor. The SACOM Contractor is responsible for carcass removal.

The Contractor shall assure all pest control chemical handling and disposal complies with NASA environmental management policies and requirements. The Contractor shall also maintain all pest control application records, making them available for Government inspection upon request.

The Contractor shall provide a Pest Control Plan in accordance with DRD FA05-5.3, *Integrated Pest Management; Report and Schedules*. The Plan shall address pest control issues that cause damage to property and/or may cause harm to the health of personnel.

D. Reporting Requirements

The Contractor shall develop, maintain, and ensure the following deliverables are accurate and timely as defined in the specific DRD(s) listed below:

DRD FA05-5.3 *Integrated Pest Management; Report and Schedules*

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
5.3 Grounds Maintenance and Integrated Pest Control			
Mowing	Perform grass cutting/mowing during seasonal months.	SSC: Area I-101 acres; Area II-294 acres; Area III-372 acres; Area IV-500 acres MAF: Area 1-160 acres; Area 2-280 acres; Area 3-250 acres	The Contractor shall maintain grass cutting in Area 1, Area 2, Area 3, and Area 4 per MAF Area Mowing Schedule and SSC Lawn/Road Maintenance Maps. Additionally, Area 1 shall be maintained to ensure grass levels are no lower than 1-1/2 inches and no higher than 2-1/2 inches.
	Perform grass cutting during non-seasonal months in Areas 1 & 2.	Three (3) cuts maximum	Nothing Additional.
Line	Line trimming/weed eating shall be	As required	Within twenty (24)

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
Trimming	performed each time mowing occurs. Grass and weeds shall be trimmed in areas and including, but not be limited to, landscape borders, flower beds, trees, shrubs, buildings, fences, poles, posts, fire hydrants, parking lot bumper blocks, and other fixed obstacles. Line trimming/weed-eating shall be performed in a manner that cuts the grass blades at approximately the same height as the adjacent mowed area or area being mowed.		hours after grass cutting/mowing in same/adjacent areas.
	All clippings shall be removed from pedestrian walkways and roadways/parking areas.		Pedestrian walkways and roads/parking areas shall be free of clippings. Same day trimming occurs.
Edging	Perform edging along sidewalks and curbing each time mowing occurs.	Reference MAF Area Mowing Schedule & SSC Lawn/Road Maintenance Maps	Within twenty (24) hours after grass cutting/mowing in same/adjacent areas.
	The grass edge shall be neat, clean and provide a groove that runs along the edge of concrete or pavement surface.		Approximate ½ inch groove at 1” depth.
Ditches	The Contractor shall maintain and repair eroding ditches, ruts, and scalped areas and shall keep culverts free of all obstruction and weed growth.	Reference MAF Area Mowing Schedule & SSC Lawn/Road Maintenance Maps	Free flowing condition in all ditches and culverts, with no debris or dead vegetation accumulation.
Right-of-Ways	(SSC Only) Maintain Right-of-Way (R.O.W.) Clearance for Overhead Power lines.	Reference SSC Lawn/Road Maintenance Maps	13.8 Kv Single circuit: 15 ft. either side of centerline; 13.8 Kv Dual Circuit: 30 ft. either side of centerline.
Special Events	At times special events onsite will require coordination of clean-up, mowing, and trimming actions. The	Twelve (12) site visits	Performance to schedule.

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PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
	Contractor shall plan accordingly to ensure normal area maintenance and special event actions are coordinated. This work does not represent an increase over the grounds maintenance currently provided.	Four (4) Special Events	
	The Contractor shall schedule/accomplish clean-up services to the area no earlier than twenty-four (24) hours and no later than three (3) hours prior to the scheduled event.	Nothing additional	No Visible Debris.
	The Contractor shall schedule/accomplish mowing and trimming services to the area no earlier than forty-eight (48) hours and no later than 24 hours prior to the scheduled event.	Nothing additional	Performance to Schedule.
Storm Clean-Up (Non-disaster)	The Contractor shall provide post-storm clean-up, removing debris, such as fallen trees and branches, which present an immediate danger to customers.	SSC: Ten (10) occurrences MAF: Two (2) occurrences	Begin clean-up within one (1) hour of notification.
Emergency Preparation and Clean-up (Disaster)	Perform storm site preparation activities (i.e., tidying of grounds areas and removal of debris that poses a threat under high winds, sand bag preparation and distribution, building roof debris removal, etc.). The Contractor shall be capable of providing emergency clean-up in accordance with PWS Section 1.1.4.	SSC: Two (2) MAF: Two (2)	Complete as required.
Fences	The Contractor shall keep fences free of vegetation at the Child Care Facility, Building 2120 for SSC (NOTE: Herbicide shall not be used). The Contractor shall keep all MAF fencing free of vegetation (NOTE: Use of herbicides is an acceptable method).	SSC: 1,015 LF MAF: 12,000 LF perimeter; 8,000 LF interior	Fence shall remain free of vegetation.
Signs (SSC Only)	Annually clean Buffer Zone signs and clear brush around the signs. Signs are located along Interstate 10, Hwy 90,	Eight (8) signs	Signs and area around signs remain clean/clear.

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
	Hwy 603, Hwy 607, and Texas Flat Road.		
Pruning – Hedges, Shrubs & Trees	<p>Shrubs shall be pruned only to promote normal development and the removal of damaged or dead limbs.</p> <p>Trimming shall be performed in a manner that maintains or enhances the plant’s natural growth patterns.</p>	<p>Young Hedges/Shrubs - As required</p> <p>Mature Hedges/Shrubs - Annually</p>	No visual damage or dead limbs.
Flower Beds	<p>Maintain Plant Annuals and Plant Beds:</p> <p>A. SSC – Atrium of Building 1100, North and South Gate Sign, and Patio areas in Building 1020, 1002, and 1105.</p> <p>B. MAF – Gate 5, Exploration Park, Building 350 Court Yard/Main Entrance, Building 350 South Entrance and Building 101 Lobby Entrance.</p> <p>Plant beds shall be maintained with a combination of seasonal plantings. The Contractor shall maintain plant beds void of any undesirable vegetation which includes, but not limited to, grass, fungus, thistle, dallis grass, clover, and other vegetation</p>	<p>SSC: 7,100 SF</p> <p>MAF: 7,893 SF</p>	Maintain healthy growth during seasonal months. Maintain landscape areas free of undesirable vegetation.
Mulch	Apply Organic Mulch (e.g. decorative bark) in Planting Beds/Tree Rings. Bark shall be pine or softwood bark mulch.	<p>SSC: 7,100 SF excluding tree rings</p> <p>MAF: 7,893 SF excluding tree rings</p>	Apply bark to maintain a minimum of 2” depth and a maximum of 3” depth bi-annually.
Herbicide	Apply non-selective and pre-emergence herbicide to prevent growth of all vegetation in paved/unpaved parking/storage areas, cracks in paved roads/sidewalks/ dock areas/curb joints, and under elevated pipe/conduit/cable tray runs. Maintain a vegetation free strip	Reference MAF Area Mowing Schedule & SSC Lawn/Road Maintenance Maps	Areas shall remain free of vegetation. If a residual herbicide is used, it must be non-leaching with minimal toxicity.

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PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
	extending one foot from the edge of all buildings, around poles, posts (including signs), fire plugs, manholes, valve pits, and other mowing obstructions. (Excluding trees).		
Weed Control	Use selective herbicides to control broad-leafed weeds in the lawn.	Areas 1 & 2 only	Attain seventy percent (70%) control of broad-leafed weed at a minimum.
Pipelines SSC Only	Maintain areas under pipelines, cable trays, and conduit runs.	Included in Mowing Maps	Ensure grass levels are no higher than four (4) inches.
Pest Control	Chemicals shall be applied as required to control fire ants. (Chemicals shall be of sufficient strength to eliminate the existing mound and prevent future mound developments). Plant life pest shall be controlled on an as required basis. Landscape plants and trees shall be inspected weekly to identify any insect or disease situation that needs to be addressed in an expedited manner to prevent damage to infected plants and the spread of the infestation to other plantings.	Reference MAF Area Mowing Schedule & SSC Lawn/Road Maintenance Maps - Areas I & II Only	As required basis No Notices of violation, fines or penalties associated with Pest Control activities.
	The Contractor shall perform periodic inspections of all facilities and grounds for evidence of rodents, pest and/or insect infestation, and identification of problem areas. The Contractor shall be responsible for managing and preventing infestation within and around buildings. The Contractor shall prepare and apply insecticides, rodenticides, poisons, chemicals, oils, dust sprays, and mixtures.	SSC: 4,079,900 SF MAF: 3,711,000 SF Forty (40) spot treatments per month Twenty (20) carcass removals for SSC	No more than five (5) pest complaints in a thirty (30) day period No Notices of violation, fines or penalties associated with Pest Control activities.
	Inspect all buildings and structures for termites. NOTE: Termite infestation and treatment will be handled via IDIQ.	SSC: 4,079,900 SF MAF:	Inspect no less than annually.

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
		3,711,000 SF	
	Inspect all buildings containing food service areas to identify pest infestations. Treat as required to eliminate pest. SSC Bldgs. 1002, 1100, 1200, 9110 & MAF Bldgs. 351 and 102 cafeterias.	SSC: 21,252 SF MAF: 42,884 SF	Inspect no less than quarterly.
	Inspect Medical Clinic at SSC Building 1100 and MAF Building 320 to identify pest infestations. Treat as required to eliminate pest.	SSC: 5,400 SF MAF: 7,325 SF	Inspect no less than quarterly.

5.4 Occupational Health Services

A. Scope

The Contractor shall provide a professional Occupational Health Services (OHS) program in accordance with NPR 1800.1, *NASA Occupational Health Program Procedures*. These services should be in compliance with all regulatory standards including Federal, state and local requirements to assure that the NASA facilities are a healthy work environment.

The four (4) major areas of services to be provided within this PWS section are Medical Treatment, Occupational Health, Employee Assistance Program (EAP), and Wellness/Physical Fitness.

Clinic operations and EAP services shall be performed during normal business hours, with access to the EAP during off-hours for emergency purposes. The **SSC** Wellness/Fitness Center operational hours are from 6:00 a.m. to 7:00 p.m. on a five (5) day per week basis (Monday through Friday), excluding holidays. The **MAF** Wellness/Fitness Center is open 7/24 and is not monitored during this timeframe. The Contractor may request change of operation hours for the Wellness Center through the Contracting Officer, as required.

Written medical clearance is required for use of the Wellness/Fitness Centers. The OHS physician shall have the final authority for clearing individuals for membership use of the Wellness/Fitness Center.

The Contractor should reference the backup/historical workload data related to OHS in Attachment J-1, *Appendix A, Additional Estimated Workload Data*.

Equipment utilized in performance of PWS 5.4 will be Government provided with associated maintenance covered in PWS 6.0, *Facility Operations and Maintenance*.

B. General Requirements

NASA's Occupational Health Program (OHP) provides initial care for NASA employees, user(s)/tenant(s) employees, and visitors who become ill or injured while on-site, as well as health services to maintain and improve the health of NASA employees and contractors with a focus on the prevention, diagnosis, treatment, and care of illness and injuries caused or aggravated by the work environment. The OHP includes occupational medicine and environmental health operation which complies with all regulatory standards including federal, state and local requirements to assure a healthy work environment.

The Contractor shall provide professional medical and administrative personnel necessary to operate an OHP clinic on a five (5) day per week basis to fulfill the overall mission of providing an Occupational Health Program in support of both sites.

NOTE: The Contractor shall staff both locations with a synergized staffing plan according to work demands indicated in Attachment J-1, *Appendix A, Additional Estimated Workload Data*.

The Contractor shall:

1. Provide a licensed physician with occupational medicine experience to serve as the Medical Director and the head of the Medical Clinic. As a minimum, medical service personnel shall meet the individual credential and license standards established by the appropriate State.
2. Provide OHS management reports and statistics in accordance with DRD requirements.
3. Prepare all OHP reports for external agencies or organizations as required by law, and submit in a timely manner to NASA for transmittal to appropriate agencies.
4. Maintain all applicable documentation required by NASA, DOT, NRC or State of Louisiana/Mississippi.
5. Provide occupational health services, training, treatments, supplies, types and quantities of medications adequate to accommodate NASA employees and NASA on-site contractor workforce in accordance with *MPR 8500.1, MSFC Environmental Engineering and Occupational Health Program and AS60-OI-034, MAF Occupational Medicine*.
6. Provide OHS based on the principles and practices embodied in an OHP and encompassing the following, but not limited to:
 - a. Provide emergency medical treatment of occupational or non-occupational illnesses and injuries for site user(s)/tenant(s) and visitors.

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- b. Provide initial treatment, first aid and follow-up care for all occupational illnesses and injuries.
- c. Provide employee examinations, scheduling, appointments, and employee notification.
- d. Provide job related physical examinations (initial/pre-placement, periodic, termination) as required by OSHA regulations, NPR 1800.1, and MWI 3410.1, *Personnel Certification Program* or other applicable adopted standard.
- e. Provide examinations which include special tests and procedures that are appropriate for the specific hazards to which an individual is exposed.
- f. Perform medical surveillance and coordinate with safety and health officials to ensure that personnel exposed to on-the-job potential health hazards are included in the Occupational Medicine Program.
- g. Develop a process to ensure that employees and their management are notified in writing or electronically of the pass or fail results of all job related physical examinations. This information shall also be available for review by the COR. Support case review requests for those employees who do not meet the medical requirements of their job.
- h. Administer and document the Occupational Medicine Program, Employee Assistance Program and Wellness/Physical Fitness Program in a manner consistent with NASA policy. All medical and EAP personnel records should be handled in accordance with NPD 1382.17, Privacy Act System Records, OSHA recordkeeping regulations, HIPPA regulations and NASA communications requirements.

NOTE: Provide copies of medical records upon receipt of a properly executed Release Form from the individual.
- i. Provide an Employee Assistance Program (EAP) in compliance with NPD 1830.1, *NASA Employee Assistance Program*.
- j. Provide preventive health services upon receipt of a completed Employee Work History Questionnaire. Preventive OHS includes but are not limited to:
 - 1) Physical examination which includes hematology, blood chemistries, urinalysis, pulmonary function, vision and audiometer testing, chest x-ray, electrocardiogram, and tonometry as required per job description.-Special surveys and studies to determine the presence of or prevention of specific diseases (e.g., diabetic screening-).
 - 2) Provide an Immunization Program to include Diphtheria-Tetanus, Hepatitis A & B vaccine, tuberculosis (for those with potential exposure) and voluntary influenza vaccines.

- 3) Provide education on health matters as deemed appropriate by the Medical Director.
- 4) Maintain status and electronic health records, assess trends.
- 5) Advocate and support a drug-free work place.

7. Input all safety related incidents into the NASA Mishap Information System (NMIS).

C. Reporting Requirements

The Contractor shall develop, maintain, and ensure the following deliverables are accurate and timely as defined in the specific DRD(s) listed below:

- DRD SA12-5.4 *Bloodborne Pathogens Exposure Control Plan*
- DRD SA14-5.4 *Medical Treatment Status Report*
- DRD SA15-5.4 *Occupational Health Services Pricing Manual and Status Report*
- DRD SA16-5.4 *Employee Assistance Program: Quarterly Report*
- DRD SA17-5.4 *Wellness and Fitness Center Status*

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
5.4 Occupational Health Services			
5.4.1 Medical Treatments	The Contractor shall perform medical treatments in accordance with NPR 1800.1.	20,000 treatments / appointments (reference table OHS-01 in Attachment J-1, Appendix A, <i>Additional Workload Data</i>)	100% accuracy and timely on all treatments. 100% timely and accurate reporting on DRD SA14-5.4.
5.4.2 Occupational Health Services	The Contractor shall perform occupational health services in accordance with NPR 1800.1.	13,000 treatments / appointments (reference table OHS-02 in Attachment J-1, Appendix A, <i>Additional Workload Data</i>) (Per site) Support Health awareness:	100% accuracy and timely on all treatments. Meet all dates and assignments in the area of Support Health Awareness. 100% timely and accurate reporting on DRD SA15-5.4.

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
		monthly site safety meetings, one (1) Health and Safety Day, one (1) annual audit. Four (4) inter-Center/external health events.	
<p>5.4.3 Employee Assistance Program (EAP)</p>	<p>The Contractor shall provide counseling, referrals, and other assistance to NASA and contractor employees in accordance with NPR 1800.1. Staff according to EAP guidelines.</p>	<p>4,000 employees and their family members</p>	<p>100% timely and accurate reporting on DRD SA16-5.4.</p>

5.4.4 Wellness and Physical Fitness Program (SSC Only)

A. Scope

The Contractor shall provide a wellness and physical fitness program that contributes to enhancing and maintaining mental and physical health. The Contractor shall staff and administer a physical fitness program and operate a fitness facility per NPR 1800.1, Fitness Centers, with particular emphasis on employee medical wellness.

B. General Requirements

1. Areas of Service

The contractor shall provide these areas of services to include but not limited to:

- a. Guidance and assistance to program participants, plus generally monitoring and observing participants while exercising.
- b. Instruction on proper methods of exercise and use of equipment.
- c. Nutritional counseling, physical fitness testing, and maintaining records on participant progress. Health education programs shall be promoted through the fitness facility with emphasis on aerobic and cardiovascular fitness, fitness evaluations and assessments, and back care. Implement Agency wellness and fitness initiatives.

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- d. Walking and jogging programs and the NASA Annual Fitness Challenge Program will be encouraged as a part of the physical fitness program.
- e. Work with the OHS Clinic to assist SSC employees in preventing and controlling health risk factors by appropriately coordinating medical and nutritional recommendations to reduce chronic disease.
- f. Lifestyle appraisals, fitness assessments, orientations, aerobics instruction, smoking cessation classes and wellness/fitness education and facilitation.

2. In-General

The Contractor shall:

- a. Provide a Wellness and Fitness Center status report in accordance with DRD-SA 17-5.4.
- b. Publish a monthly Wellness and Fitness Exercise Program of upcoming events.
- c. Collect all fees, if applicable.

NOTE: All fees shall be approved by the CO, if applicable.

- d. Provide information sharing and education through a variety of venues, including pamphlets, newsletters, health screening, lectures and personal training, with the underlying message that optimal health and fitness are achievable, in part, through regular physical exercise and screenings for early detection of disease.

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
5.4.4 Wellness and Physical Fitness Program (SSC Only)			
Wellness and Physical Fitness Program	The contractor shall operate and maintain the SSC Wellness/Fitness Center and equipment and provide a comprehensive wellness program.	750 members	Satisfactory completion of PWS 5.4.4 requirements. Zero percent (0%) injury due to malfunction of equipment.
Quarterly Report	The contractor shall prepare a quarterly summary report of wellness/fitness center activities detailing program participation, organizations/company/tenant members, activities provided, health screenings, clinic referrals and overall assessment of	Four	100% timely reporting on DRD SA17-5.4.

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
	the facility and operational cost.		
Quarterly Survey	Survey membership quarterly to determine quality of Wellness/Fitness Center Program and customer satisfaction. The results shall be made available for the CO review upon request.	Four	95% customer satisfaction.

5.5 Internal and External Communications

A. Scope

The Contractor shall provide services to the SSC Office of Communications (OC) and the MAF via the MSFC Public Affairs Office (PAO) in support of NASA Visitor Center operations, media services, History Office, public engagement, and outreach activities.

B. Limitations, Restrictions, and/or Special Conditions

1. Multi-Media Services

The Contractor shall interface with the third party contractor that has the requirement to provide multi-media services.

2. Information Technology Services

Implementation of updates and changes will be performed by the SSC Information Technology Services (ITS) Contractor and/or MSFC Information Technology Services (MITS) or the current SSC/MSFC local Information Technology Contractor.

3. Tours

The Contractor shall ensure that tours are planned and conducted in accordance with SPR 1600.1, *Security Requirements*.

4. Offsite Work Locations

Periodically, the Contractor shall travel to offsite locations to perform tasks. Local events include those events that can be travelled to and from in one day and generally occur in Louisiana and Mississippi. For events outside of the local area that require more than one travel day, the Contractor shall request approval of applicable travel expenses from the Contracting Officer prior to the initiation of the activity and travel expenses shall be in accordance with the U.S. General Services Administration (GSA) Federal Travel Regulations.

C. General Requirements

The Contractor shall develop, prepare, and disseminate information, including, but not limited to, brochures, reports, press releases, bulletins, letters, action responses, articles, key messages, white papers, speeches, communication plans, broadcast scripts, text and content for signs, Center publications, social media communication, and general communications to audiences identified by the OC and PAO.

The Contractor shall answer inquiries about NASA programs including, but not limited to, requests for follow-up interviews, requests for materials, and requests for information. Responses to all inquiries are to be coordinated with the OC and PAO.

The Contractor shall store and manage all media service material including, but not limited to, exhibits, videos, news releases, press kits, brochures, biographies, and speeches.

For the purpose of this PWS, a catering event is where food and/or beverages are provided in support of occasions such as business meetings, conferences, presentations, special events, etc. The Contractor shall be capable of delivering catering services within 72 hours of a catering request. Catering events fall into two categories; a formal catering event or an informal catering event. Formal catering events range from providing hot meal buffets to providing the set-up and service of individual place settings. Informal catering events include, but are not limited to, providing continental type breakfast/lunch platters such as muffins, bagels, cookies, sandwiches, assorted snacks, drinks, etc.

D. Reporting Requirements

The Contractor shall develop, maintain, and ensure the following deliverables are accurate and timely as defined in the specific DRD(s) listed below:

- DRD MA03-5.5 *Monthly Activity Report*
- DRD MA06-5.5 *Geographic Economic Impact Report*
- DRD MA07-5.5 *Offsite Activity Material (SSC Only)*

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
5.5 Internal and External Communications			
5.5.1 Media Services	The Contractor shall develop, prepare, and disseminate information. Content shall be approved by the SSC OC and the MAF Management Office.	Daily	Ninety-five percent (95%) of information shall be relevant, current, and accurate. In accordance with the OCOM.
	The Contractor shall answer inquiries	Ten (10)	Provide response

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PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
	about NASA programs from a variety of audiences.	Monthly	within one (1) hour of receiving the call and in coordination with the OC and PAO.
	The Contractor shall identify, recommend, develop, and produce stories for NASA Television utilizing Government-provided equipment.	Thirty-five (35)	NASA approved and in accordance with the OCOM.
	The Contractor shall review all public-facing SSC websites and publications and provide updates in accordance with the OCOM. (SSC Only)	Quarterly Approx. 230 Items	Content shall be relevant, current, and accurate.
	The Contractor shall develop, manage, and maintain media product inventory. The Contractor shall track distribution of media products.	Thirty (30) Per Month	Replenishment order shall be submitted via DRD MA03-5.5. No instances of out-of-stock items.
5.5.2 NASA Visitor Support (Core – SSC Only)	The Contractor shall coordinate and provide VIP tours, activities, and materials.	Eighty-five (85)	In accordance with the OCOM.
5.5.3 Offsite Outreach Activities	The Contractor shall develop, schedule, and provide informational programs which may include but are not limited to providing exhibits and performing demonstrations at offsite locations.	Sixty-two (62)	NASA approved and in coordination with the OC and PAO.
5.5.4 Onsite Activities	The Contractor shall develop, schedule, and execute activities onsite which may include but are not limited to site tours, presentations, and materials.	Fifty-two (52)	NASA approved and in coordination with the OC and PAO.
5.5.5 Catering (IDIQ Only)	The Contractor shall be capable of delivering catering services within seventy-two (72) hours of request and will ensure complete, accurate, and timely status and responses to customer inquiries and requests.	Five (5)	Services shall be provided on time. No instance of validated customer complaint.
5.5.6 History Office (SSC Only)	The Contractor shall manage and coordinate history document retention with the Office of Records Retention.	Twenty-five (25) Boxes 500 Documents per	In accordance with the NPR 1441.1, <i>NASA Records Retention Schedules</i> and the OCOM.

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
		box	
	The Contractor shall manage and respond to historical data requests in accordance with the OCOM.	Fifty-five (55)	No instance of response later than five (5) calendar days of initial contact.
	The Contractor shall provide data entry services of historical documents and scan documents into digital files. The Contractor shall report historical database problems in accordance with the OCOM.	Thirty (30) Entries Weekly	No instance of missing data. No instances of unreported database problems.
	The Contractor shall conduct oral interviews and provide transcription services of each interview in accordance with the OCOM.	One (1) Quarterly	Transcripts to be completed within two (2) weeks of interview.
	The Contractor shall provide historical writing tasks including, but not limited to, articles, journals, periodicals, and monographs.	Seventy (70)	Tasks are to be coordinated with the OC and reported on DRD MA03-5.5.

5.5.7 NASA Visitor’s Center (IDIQ Only)

NOTE: Effort in this PWS section is not part of Core Services and, if determined appropriate, will be authorized by an IDIQ task.

The Contractor shall:

1. Staff NASA exhibits and conduct bus tours in accordance with the Office of Communications Operations Manual (OCOM)

Standard: Provide tours utilizing an approved OC Tour Guide Script

2. Ensure that all exhibits are relevant, current, accurate, clean, and operational in accordance with the OCOM

Standard: Notify OC of non-operational exhibits within one hour of observing or being notified of non-functional exhibits

3. Schedule, coordinate, and record organized group visits

Standard: Confirm and record reservations one week prior to visit

4. Maintain adequate inventory of giveaway supplies

Standard: No instances of out-of-stock items

5.6 Education Services (IDIQ Only)

NOTE: Effort in this PWS section is not part of Core Services and, if determined appropriate, will be authorized by an IDIQ task.

A. Scope

The Contractor shall provide services to the SSC Office of Education (OE) in support of programs and projects approved and sponsored by NASA. These include activities in educator professional development, student and faculty programs, STEM engagement, higher education, informal education, and institutional capacity building.

The Contractor shall conduct workshops at locations both offsite and onsite. Presentations are typically provided at schools or universities in the SSC OE service area (Mississippi and/or Louisiana).

B. Limitations, Restrictions, and/or Special Conditions

1. Government Property

Equipment removal must be scheduled, approved by education staff, and returned immediately following the conclusion of events in accordance with NPD 4200.1, *Equipment Management*.

2. Multi-Media Services

This Contractor shall interface with the third party contractor that provides multi-media services.

3. Information Technology Services

Implementation of updates and changes will be performed by the SSC Information Technology Services (ITS) Contractor and/or MSFC Information Technology Services (MITS) or the current SSC/MSFC local Information Technology Contractor.

4. Educational Standards

All workshops and presentations shall adhere to Common Core Standards - <http://www.corestandards.org/the-standards>.

5. Contractor Skill Requirement

The Contractor shall possess an Education certification or degree and have knowledge of principles and methods for curriculum and training design, teaching and instruction for

individuals and groups, and the measurement of training effects.

C. General Requirements

The Contractor shall perform all duties associated with the development, preparation, and presentation of workshops, to include, but not limited to, scheduling, advertising, registration, creating material, organizing activities, determining audio/visual equipment needs, presentation delivery, evaluation, and facility clean-up. The Contractor shall ensure that venues are appropriate and that audio systems and Government and/or third party provided presentation equipment are available to accommodate the event. Workshops shall be conducted in a safe and professional manner. Material presented shall be relevant, up-to-date, and accurate. Pending availability, additional workshop materials shall be provided upon request to participants. The Contractor shall assist participants in using the NASA Office of Education Performance Measurement (OEPM) system to evaluate each workshop.

The Contractor shall perform duties associated with assisting students seeking Higher Education fellowships, internships, and scholarships with NASA. These duties include, but are not limited to, assisting students in navigating and completing online applications, assisting students in preparing packets for selection committee review, assisting mentors, assisting student in-processing (including orientation), coordinating badging and IT support, organizing and scheduling student presentations, collecting student surveys, and compiling resulting data.

The Contractor shall provide support regarding educational content and shall provide educational input to exhibits and events.

The Contractor shall organize and support special events upon request.

The Contractor shall be up-to-date on trends and technologies.

PWS TITLE	REQUIREMENTS	ESTMATED IDIQ	PERFORMANCE STANDARD
5.6 Education Services			
5.6.1 Workshops	The Contractor shall complete the following:		
	1. Create an event schedule.	Three (3)	Schedules shall be approved by NASA prior to distribution. Schedule received thirty (30) calendar days prior to events.
	2. Create brochures.	Three (3)	Brochures shall be approved by NASA prior to distribution.
	3. Register participants and provide registration confirmation.	Fifteen (15) – thirty (30) participants	Registration and confirmation to occur NLT one week prior to

PWS TITLE	REQUIREMENTS	ESTMATED IDIQ	PERFORMANCE STANDARD
		per workshop	event. The Contractor shall provide the workshop participant names to security forty-eight (48) hours prior to the event.
	4. Conduct NASA-approved workshops and assist with evaluations.	Twenty-five (25) – thirty (30)	Greater than ninety percent (90%) positive feedback required from customer.
	5. Cleanup and restore facility to normal condition.	Twenty-five (25) – thirty (30)	Restore facility within four (4) hours of workshop conclusion.
5.6.2 Presentations	The Contractor shall develop presentations and distribute and collect presentation evaluation questionnaires.	twenty-five (25)	Greater than ninety percent (90%) positive feedback required from customer.
5.6.3 Education Resource Center (ERC)	The Contractor shall operate the ERC in accordance with guidelines found on the ERC Network http://www.nasa.gov/offices/education/programs/national/ercn/home/index.html#_UxTn5RDYN9t . The Contractor shall ensure materials are adequately stocked and orders are placed to replenish material.	Order Placed Quarterly	No instance of out-of-stock materials.
	The Contractor shall create educator packets utilizing ERC Material found on the ERC Network.	1,000	Packets are to be made up at least one (1) day prior to visit.
5.6.4 Tracking	The Contractor shall manage and track OE technology assets in accordance with NASA NPD 4200.1.	As Required	OE technology assets shall be checked out in accordance with NASA NPD 4200.1.
5.6.5 Website	The Contractor shall review internal OE websites and provide content update suggestions including verbiage, photographs, etc.	Quarterly	Comply with IT guidelines and with the “Web Site Policies and Guidelines” page for SSC Webmasters at http://ssc.intranet.ssc.nasa.gov/internal/webmasters/index.html

PWS TITLE	REQUIREMENTS	ESTMATED IDIQ	PERFORMANCE STANDARD
5.6.6 Astro Camp			
Astro Camp Plan	The Contractor shall create and submit an Implementation Plan to OE.	One (1)	Prepared in accordance with specifications of the OE. Submitted NLT three (3) months prior to commencement of activities.
Astro Week Camps	The Contractor shall conduct Astro Camp Weekly Camps.	Seven (7) – twelve (12) Camps Fifty (50) – sixty (60) participants per week	Completed in accordance with the approved Implementation Plan.
Astro Camp Special Events	The Contractor shall conduct Astro Camp Special Event Camps.	Six (6) – twelve (12) Twelve (12) – thirty (30) participants per day	Completed in accordance with the approved Implementation Plan.
Astro Camp Reporting	The Contractor shall submit a detailed annual summary report which includes metrics of current and past events and an evaluation component in accordance with the approved Implementation Plan.	One (1)	Report submitted NLT October 31 st .
5.6.7 Higher Education Program Support			
Higher Ed Packet Preparation	The Contractor shall prepare packets and assist students for selection committee review.	Thirty-six (36) – ninety (90)	Packets shall be orderly and accurate.

5.7 Energy Management, Controls and Operations

A. Scope

This section of the PWS defines the Contractor’s responsibilities for providing all material and services necessary to manage and control the EMCS systems. The Contractor shall staff and operate the systems via a centralized location to reside at SSC. (Maintenance of the EMCS systems is covered under PWS Section 6.2.) Work shall include, but is not limited to, performing database management and backup required to protect software; real-time management and support of the site facilities in regard to site mission-specific requirements; processing alarms and initiating corrective action when necessary; and monitoring/reviewing

Condition Based Maintenance (CBM) data/trends, identifying impending equipment failures and scheduling appropriate follow-on maintenance/inspection to prevent failure.

This section also addresses the requirements associated with the implementation of an Energy Management and Water Conservation Program that is designed to ensure compliance with Federal Laws and Regulations, Executive Orders, Agency and Center/Site mandates for SSC and MAF.

B. System Definitions

1. Energy Management and Control Systems

The Energy Management and Control Systems (EMCS) each consist of a distributed network of stand-alone controls, which interface with a central station for monitoring and operator adjustment. The systems are used to control and monitor a wide variety of equipment and processes. The Contractor shall ensure that all ‘application and database’ components of the EMCS are kept in a secure and managed configuration (updated/patched/mitigated) in accordance with this PWS and NASA IT Security Standards.

The EMCS Central Stations serve as the central control point for real-time monitoring, operation and management of Facilities, Systems, Equipment and Utilities (FSEU) at each of the sites. Each system acts as an effective tool for energy management, reporting, data archiving and analysis for equipment control operations and maintenance. As such, each system (both the machine and human elements) is of vital importance for SSC/MAF mission operations and shall be operated and maintained in a dependable configuration and manner. The operation of the Central Station at SSC includes the EMCS as well as the Fuel Monitoring System and the SSC Main Substation Monitoring System. The operation of the Central Station at MAF includes the EMCS and MAF Power Logic substations monitoring system.

2. SSC System

The EMCS operating environment consists of Siemens Building Technology APOGEE Insight system software and a central station hardware platform configuration. This system provides real time monitoring, command and control of every aspect associated with various FSEU at SSC. Approximately 180 buildings/facilities are connected to this system. The EMCS APOGEE Insight building/facility automation system is currently comprised of approximately 90,000 field points at the floor level network. These points are connected to approximately 350 field stand-alone microprocessors at the building/automation level network, communicating over the SSC Communication Network, and routed to a main and back-up server at the management level network central station. EMCS field components include instrumentation, signal cables and wiring, programmable controllers and components (Modular Building Controllers (MBCs), Signal Conditioning Units (SCUs), Remote Building Controllers (RBCs)), and network wiring up to the point of interface with the telecommunication links.

3. MAF System

The MAF EMCS is predominately comprised of a Johnson Controls, Inc., system. The system consists of input/output field controllers, supervisory field controllers, servers, workstations, and software. The system server is a Johnson Controls Metasys Server 6.0 ADX GGT with graphics package receiving the data from 45 Network Automation Engines (NAEs) supervisory controllers located throughout the site. There are approximately 8,000 input and output hardware devices (relays, sensors, transducers, actuators, etc.) terminated to approximately 500 field controllers. There are also Programmable Logic Controller (PLC) systems that the EMCS system interfaces with through communication protocols. The system is utilized to monitor and control FSEU throughout the site.

C. Reporting Requirements

The Contractor shall develop, maintain, and ensure the following deliverables are accurate and timely as defined in the specific DRD(s) listed below:

DRD GA06-5.7	<i>Energy Management and Water Conservation Program Plan</i>
DRD GA07-5.7	<i>Energy and Water Conservation Audit Report</i>
DRD GA08-5.7	<i>Monthly Energy Consumption Records</i>
DRD MF05-5.7	<i>Electric Utility Cost Allocation Report</i>
DRD MF06-5.7	<i>Natural Gas Utility Cost Allocation Report</i>

5.7.1 EMCS Operations

The Contractor shall:

1. Prepare a Standard Operating Procedure (SOP) and Manual for EMCS Operations in accordance with DRD GA02-6.1, *Standard Operating Procedures*.
2. Perform configuration management for the System Central Host so as to restore the system to fully functional and reliable condition upon failure, including configuration management of the Central Processor(s), PC terminals, keyboards, monitors, printers, tape/disk drives, power protection devices, hardware, firmware, software, interconnecting wiring, and other appurtenances required to have a completely functional and maintainable host.
3. Perform backups as necessary to ensure system integrity.
4. Remain knowledgeable of the latest software and firmware revisions available for the EMCS central consoles, servers, accessories and field panels/devices. Recommend upgrades to NASA, Center Operations Directorate, Operations and Maintenance Division, for review and approval by the Contracting Officer prior to any cost being

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- incurred. Recommendations shall include potential impacts of not performing the upgrade.
5. Initiate corrective action necessary in response to complaints from personnel regarding room temperature (i.e., too hot or cold) as necessary to minimize personnel discomfort in administrative areas.
 6. Operations shall include, but not be limited to, resetting and restarting tripped equipment; adjusting regulators, thermostats or operational set points; performing functional checkouts and point-to-point checks; and isolating/returning equipment to service as a result of planned or unplanned outages, Preventive Maintenance (PMs), trouble shooting, Corrective Maintenance (CMs) and construction activities.
 7. Monitor ambient temperatures and weather conditions and provide operational support and notifications as required for site operations.
 8. Monitor and respond to alarm conditions. Initiate work orders, if necessary, for investigation or repairs of FSEU.
 9. Respond to NASA inquiries regarding alarm history, data trending, number of hot/cold calls, equipment set points, as well as other information relating to EMCS operations.
 10. Provide EMCS programming support, including the following:
 - a. Accomplish graphics modifications and/or additions to operator-machine interfaces (e.g., floor plans, information screens, system schematics, and point description).
 - b. Accomplish algorithm modifications or additions to support operational requirements and maintain energy efficient operation.
 - c. Modify point parameters for alarm management and energy conservation (e.g., set-points, alarm limits, start/stop times).
 - d. Modify parameter settings in response to natural gas curtailment exercises and activities.
 - e. Software development and/or changes require a functional operational check after changes have been made.
 11. **SSC Only:** Monitor fuel levels as necessary to ensure tanks are maintained at proper levels. Initiate corrective action upon system monitoring problems or insufficient fuel levels.
 12. **SSC Only:** Monitor Main Substation and initiate callout to Mississippi Power for Monitoring System or Substation problems.

13. **MAF Only:** Monitor substations through the Power Logic system and initiate corrective action if necessary.
14. Provide support for FSEU operations, troubleshooting and maintenance activities.
15. Initiate and manage data trending for EMCS monitored systems and equipment. Provide system-generated reports and trend data as requested.

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
5.7.1 EMCS Operations			
Monitor and Review	Monitor and review all EMCS connected equipment/system parameters on a continuous basis.	One (1) system each at MAF and SSC, 24/7 operations	The system shall be staffed continuously with personnel who are knowledgeable of site specific operations and missions and are trained to operate EMCS hardware and software (including other systems at the EMCS Central Console Stations as specified).
Manage Software	Manage software for the EMCS Central Consoles, servers, and accessories to include field panels and devices. Contractor shall maintain back-up capability for system restoration in the event of system corruption or destruction.	Contractor determined/as required.	System configuration shall be maintained current.
Process Alarms	Acknowledge and respond to alarms	MAF – 3,500 per month SSC – 5,000 – 6,000 per month	Acknowledge alarms within ten (10) minutes and start remedial action within fifteen (15) minutes.
Data Trending	Monitor/review Condition Based Maintenance (CBM) data/trends, identifying impending equipment failures, and scheduling appropriate action.	See Attachment J-1, Appendix A, <i>Additional Workload Data</i>	Personnel shall possess the knowledge and experience necessary to understand the principles behind CBM and shall possess the ability to recognize and

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
			acknowledge a potential problem and react accordingly.

5.7.2 Energy Management and Water Conservation

The Contractor shall propose and implement an Energy Management and Water Conservation Program that will meet the energy and water management goals established by the Energy Independence and Security Act of 2007 (EISA 2007), Energy Policy Act of 2005 (EPACT), Executive Orders 12759, 13123, 13221, 13101, 13149, 13423, and 13514, and NPR 8570.1. The Contractor shall develop an implementation plan (DRD GA06-5.7) that describes how the Contractor intends to accomplish energy and water conservation goals for all performance requirements. The Plan shall be inclusive of proposed new designs, renovations, and equipment; the procurement/replacement of energy goods or equipment; and the operations and maintenance of utility systems. Life-Cycle Costs (LCC), as defined in 10 CFR 435 and 436 and Executive Orders, shall be included in the Plan.

The Contractor shall:

1. Manage the Energy Management and Water Conservation Program with experienced personnel having a minimum of three (3) years’ experience as Association of Energy Engineers (AEE) Certified Energy Managers (CEM) or equivalent.
2. Control all EMCS connected devices to ensure energy efficient operations by performing actions including, but not limited to, adjusting temperature control program changes due to changes in building occupancy; and optimizing, and/or fine tuning, start/stop programs, equipment schedules, and temperature reset schemes.
3. Provide and implement an Energy and Water Management Program Plan that will meet current Agency and Federal energy/water conservation policies.
4. Provide planning support to the SSC Sustainability Team and the MAF Energy Efficiency and Water Conservation Team.
5. Investigate new energy and water conservation measures and determine implementation procedures and control functions required.
6. Review energy practices and make short-term and long-term recommendations for needed energy conservation and management improvements.
7. Communicate with the designated utility providers on energy and water matters.

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8. Support energy and water conservation meetings and projects (i.e., Design reviews, Sustainability Teams, Energy Efficiency & Water conservation Teams, etc.).
9. Conduct building and area energy and water conservation audits in accordance with DRD GA07-5.7.
10. Support external audits.
11. Provide energy consumption data in accordance with DRD GA08-5.7.
12. Validate utility invoices.
13. **SSC Only:** Maintain and utilize the Stennis Energy Allocation System (SEAS) to provide utility cost allocation reporting in accordance with DRD MF06-5.7 and DRD MF07-5.7. Costs shall be adjusted as necessary to account for the usage of alternate energy sources. Specifically, when meters are installed in a system such that they record usage regardless of the source (i.e., even when disconnected from utility and connected to an alternate power source) data shall be properly adjusted to insure the accuracy of billing. (e.g., when one or more facilities are being powered by an emergency generator, the Contractor shall ensure the meters used for utility billing is either not recording such events or that the meter readings are properly adjusted to account for such).

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
5.7.2 Energy Management and Water Conservation			
Program Plan	The Contractor shall provide and implement an <i>Energy Management and Water Conservation Program Plan</i> that will meet current Agency and Federal energy/water conservation policies & regulations. (DRD GA06-5.7, <i>Monthly Energy Consumption Records</i>)	Initial plan after contract award and annual updates	Initial plan to be submitted within sixty (60) calendar days of the contract start date. The NASA approved plan shall be updated annually and due on October 1 st .
Create and Maintain Energy Records	Create and maintain records on project proposals/developments, white papers, energy savings estimates, and onsite conservation project savings status/metrics.	Thirty-four (34) various submissions	Records shall be maintained in accordance with Section 1.1.2 of the PWS.
Support NASA Energy Manager	Contractor shall support the NASA Energy Manager in providing information and data upon request to include periodic (planned & ad hoc) Center, Agency, & Federal Data calls.	Twenty-two (22) times	Contractor shall provide response within suspense time stated on action request. Range is from one (1) week to forty-eight (48) hours.

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PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
Maintain Documentation	Maintain & improve existing standards and procedures to ensure compliance with Federal and Agency conservation requirements. Create new standards & procedures as needed to maintain compliance.	As required	Standards and procedures shall be maintained current.
Support Design Review	Support Design Reviews for onsite building construction and renovations.	Sixty (60) – 100 times	Respond in a timely manner, per specified review schedules.
Data Entry and Analysis	Perform data entry & analysis as required for Federal & Agency databases periodic reporting; to include, but not limited to, the NASA Environmental Tracking System (NETS), Energy Star Portfolio Manager, DOE Compliance Tracking System (CTS).	Monthly, quarterly, and annually.	Contractor shall provide database entries and/or other requested written response to Center level rep at least 48 hours prior to HQ due dates.
Consumption Records	Validate monthly utility meter readings; review and verify accuracy of monthly utility bills; and maintain and provide comprehensive energy monthly consumption records at the building or system level in accordance with DRD GA08-5.7 to fulfill data needs of Center, Agency and Federal reporting.	Eight (8) bills monthly	Record shall be submitted in accordance with DRD GS08-5.7. Verified electronic copies of utility bills shall be submitted to the NASA Energy Manager, or designees, within ten (10) calendar days of receipt of invoice.
SEAS	SSC Only: Maintain and utilize the Stennis Energy Allocation System (SEAS) for monthly Customer Utility Cost Allocation Reporting: <ul style="list-style-type: none"> a. Maintain utility meter data in SEAS b. Input consumption data and validate space utilization data each month in SEAS c. Using SEAS, provide Utility Cost Allocation Reports each month per DRDs MF05-5.7 and MF06-5.7. 	SSC: One (1) Customer Utility Invoice Report for electricity, 2 Customer Utility Invoice Reports for natural gas MAF: N/A	In accordance with DRDs MF05-5.7 and MF06-5.7. Reports are accurate and are adjusted to account for usage of alternate energy sources.

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PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
Support Audits	Support audits related to energy and/or water conservation such as the triennial HQ Environmental and Energy Functional Review (EEFR), third-party International Organization for Standard (ISO) Registrar, and Center internal audits. Provide support to NASA in preparations for & during internal & external audits.	<p>SSC: One (1) – two (2) internal audits</p> <p>One (1) EEFR/three (3) years</p> <p>One (1) ISO Registrar audit</p> <p>MAF: One (1) EEFR/three (3) years</p> <p>One (1) internal</p>	Timely support and responsiveness to findings/corrective actions.
Energy and Water Conservation Audits	<p>Building Energy and Water Conservation Audits</p> <p>a. Perform comprehensive building/area energy and water conservation audits/evaluations that meet the intent of the Energy Independence and Security Act of 2007 (EISA 2007) and Energy Policy Act of 2005 (EPACT 2005).</p> <p>b. Provide audit/evaluation reports per Agency and Federal regulations as defined in DRD GA07-5.7.</p>	<p>SSC: Audit twenty-five percent (25%) of Goal Subject (GS) square footage/year. [SSC Goal Subject (GS) ft² is approximately 1.8M] Semi-annual reporting to HQ</p> <p>MAF: Audit twenty-five percent (25%) of square footage/year Semi-annual reporting to HQ</p>	Audit Reports shall be provided in accordance with the DRD GA07-5.7.
Energy Awareness	Maintain & Improve Energy Awareness Program. Implement &	SSC: One (1)	Contractor to support NASA Energy

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
	support onsite employee awareness activities (e.g.: Annual Energy Awareness Day, Energy Webpages, onsite publications and information screens, etc.).	Awareness Day (October) Provide Content for webpage updates, monitor screens, and onsite publications four (4) to eight (8) times MAF: Work with IT to create Webpage in first six (6) months, one (1) Awareness activity/year, update webpages as needed, publication twice a year	Manager in planning, preparing, and conducting the one (1) day October energy day event (SSC Only). Content for webpages, monitors, & publications to be submitted within seventy-two (72) hours of NASA request.

5.8 Fire Protection Services

NOTE: MAF fire and emergency response services, including ambulance services, are provided by the New Orleans Fire Department (NOFD) through an Inter-agency agreement, MK13-257. Therefore, these requirements do not apply to MAF. However, the Contractor shall support some activities as indicated in the work-load data table, below entitled “General Requirements.” Unless specifically stated, all responsibilities outlined below are for SSC Only.

A. Scope

The Contractor shall furnish all personnel, supervision, and management necessary to provide emergency response and fire protection services on a twenty-four (24) hour per day, seven (7) days per week, fifty-two (52) weeks per year basis, including holidays. Equipment provided by the Government is indicated in Attachment J-1, Appendix A, *Additional Workload Data* and Attachment J-9, *Government Furnished Property*. In accordance with PWS 5.8, the

Government will provide the required and approved Equipment with the exception of the fire trucks identified as “Fire/ Rescue Vehicle” and “2009 E-one HP 78 78’ AERIAL LADDER” on the Government depreciation list located in Attachment J-9, Historical and Reference Data folder. In accordance with RFP Section G.8, the Government will approve the SACOM Contractor to depreciate the fire trucks identified as “Fire/ Rescue Vehicle” and “2009 E-one HP 78 78’ AERIAL LADDER” on the Government depreciation list. In the event additional equipment, material, tools or supplies are needed to accomplish the work described below in section B, General Requirements, the contractor shall submit the request to the NASA Fire Protection Manager.

B. General Requirements

The Contractor shall provide fire and ambulance service fully staffed with qualified personnel in accordance with National Fire Protection Association (NFPA) standards, NASA-STD-8719.11, *Safety Standard for Fire Protection*, SPR 8715.1, *Safety and Health Program Requirements* and the referenced requirements within these publications. The minimum staffing of qualified personnel shall be such that two engine companies, with the capability of a minimum of 2 EMTs, will respond to each alarm and safely operate concurrently between the two (2) units as minimally required by NFPA standards. The ambulance service is for immediate response only. Upon assessment and initial stabilization treatments, the injured person should be transported to the clinic or to regional medical facilities offsite as the situation dictates.

The Contractor shall develop and operate a Breathing Air Program, including the test and maintenance of all related equipment, supplies, air quality, and filling of Self Contained Breathing Apparatus (SCBAs).

The Contractor shall maintain access to all documentation (i.e., drawings, floor plans, procedures, plans) for daily reference by fire protection personnel.

Maintenance of PPE/clothing (i.e., boots, pants, helmets, etc.) is requirements associated with this section of the PWS. The Contractor shall be responsible for maintaining this equipment in a safe, serviceable/operable condition and to repair, or identify for replacement, any equipment as required.

Maintenance requirements of all fire protection hydrants, facility systems/fixtures, vehicles/mobile equipment, and repairs of Government-furnished fire-fighting equipment are addressed in PWS Section 6.2.

C. Reporting Requirements

The Contractor shall develop, maintain, and ensure the following deliverables are accurate and timely as defined in the specific DRD(s) listed below:

DRD SA13-5.8 *Fire Protection Quarterly Report*

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PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
<p>Inspect Buildings (SSC & MAF)</p>	<p>Conduct an inspection of all fire protection equipment in all buildings and maintain a file of all inspections. Report findings to the responsible party(s) for resolution and/or record discrepancies.</p> <p>The Contractor shall use the NASA provided Safety, Health, and Environmental tracking (SHEtrak) system to record and track to closure all discrepancies.</p>	<p>SSC: 188 annual building inspections</p> <p>MAF: 108 annual building inspections in coordination and participation with the NOFD</p>	<p>NFPA 1231, <i>Standard on Water Supplies for Suburban and Rural Fire Fighting</i> NASA STD – 8719.11, SPR 8715.1</p> <p>Inspections and findings submitted on time, complete, and accurate on quarterly report, in accordance with DRD SA13-5.8.</p>
<p>Inspect and Conduct Flow Tests (SSC & MAF)</p>	<p>Support the flow test of the fire water distribution system, including all hydrants and water pumping stations, per NFPA 291, <i>Recommended Practice for Fire Flow Testing and Marking of Hydrants</i> and NASA-STD-8719-11.</p> <p>Flow test scheduled and performed in PWS Section 6.2. Support: To be aware and knowledgeable of the conditions of the systems and any unique operational issues.</p>	<p>462</p>	<p>NFPA 291 NASA-STD-8719.11 Report the deficiencies/ discrepancies to work control within twenty-four (24) hours of the final inspection or flow check.</p> <p>Inspections and findings submitted on time, complete and accurate on quarterly report, in accordance with DRD SA13-5.8.</p>
<p>Perform Fire Drills (SSC & MAF)</p>	<p>Contractor shall conduct fire drills that demonstrate the satisfactory performance of fire systems and appropriate paths which employees should take to egress through exits in the case of a fire for all inhabited facilities. Per NASA-STD-8719.11 and NFPA standards.</p>	<p>SSC: All occupied buildings annually except for the day care facility which is required monthly.</p> <p>MAF: Coordination and support to</p>	<p>NASA-STD-8719.11</p> <p>Fire Drill Assessment submitted on time, complete and accurate on quarterly report, in accordance with DRD SA13-5.8.</p>

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
		NOFD for all occupied building's annual fire drills.	
<p>Inspect Extinguishers (SSC & MAF)</p>	<p>Perform visual inspection on portable/wall mounted fire extinguishers, including-but not limited to; those in buildings, on boats, and on vehicles to ensure they are fully operational.</p>	<p>2800 Extinguishers monthly visual</p>	<p>NFPA10, <i>Standard for Portable Fire Distinguishers</i> NASA-STD-8719.11</p> <p>Inspections and findings submitted on time, complete, and accurate on quarterly report, in accordance with DRD SA13-5.8.</p>
<p>Support Test and Recharge of Special Systems (SSC & MAF)</p>	<p>(Systems tested in maintenance, PWS 6.2): Special systems (i.e. Halon, Co2, Dry Chemical, FM200, etc.) shall be inspected and tested to assure operational readiness. Specialized installed systems shall be tested. Recharging in accordance with manufacture's specifications.</p> <p>Support: To be aware and knowledgeable of the conditions of the systems and any unique operational issues.</p>	<p>SSC: One (1) Co2 one (1) FM200 three (3) Wet Chemicals</p> <p>MAF: 500 Type ABC</p> <p>Four (4) type D; two (2) Type K</p> <p>One (1) CO2 Pit deluge system (twenty-seven (27) ft. nils machine)</p>	<p>NFPA 12, <i>Standard on Carbon Dioxide Extinguishing Systems</i> NASA-STD-8719.11</p> <p>Inspections and findings submitted on time, complete, and accurate on quarterly report, in accordance with DRD SA13-5.8.</p>
<p>Inspect and Test Motorized Apparatus (SSC Only)</p>	<p>All motorized fire- fighting apparatus shall be inspected and tested to ensure operability. Log apparatus checklist and keep on file in fire department. The washing of apparatus shall be conducted at SSC designated vehicle washing facilities.</p>	<p>Daily three (3) Pumpers; one (1) Rescue Truck; one (1) Aerial; two (2) Ambulances;</p>	<p>NFPA 1002, <i>Standard for Fire Apparatus Driver/Operator Professional Qualifications</i>, NFPA 1911, <i>Standard for the Inspection, Maintenance, Testing,</i></p>

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PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
		two (2) - 25Hp Boats; two (2) GSA Trucks	<p><i>and Retirement of In-Service Automotive Fire Apparatus, NASA-STD-8719.11</i></p> <p>No apparatus shall be out of service for more than 24 hours without backup plan initiated.</p> <p>Inspections, test, and findings submitted on time, complete, and accurate on quarterly report, in accordance with DRD SA13-5.8.</p>
Inspect and Test Hoses (SSC Only)	Contractor shall inspect, test, and maintain all hoses by removing and pressurizing. Test results shall be maintained on file in the fire department.	Twenty (20) hoses	<p>NFPA 1961, <i>Standard on Fire Hose</i></p> <p>Inspections and findings submitted on time and accurate on quarterly report, in accordance with DRD SA13-5.8.</p>
Test Pumps and Ladders (SSC Only)	Conduct flow test of all flow apparatus pumps and conduct test of all ladders to assure compliance with manufacturer’s specifications. Test results shall be maintained on file in the fire department.	Fourteen (14) Ladders; three (3) pumps	<p>NFPA Standard 1931</p> <p>Inspection, test and findings submitted on time and accurate on quarterly report, in accordance with DRD SA13-5.8.</p>
Pre-Fire Plans and Fire Evacuation Plans (SSC & MAF)	<p>Fire evacuation plans for existing facilities shall be reviewed annually and updates and/or changes processed in accordance with PWS Section 4.2. Revised plans shall be posted within thirty (30) calendar days of updates.</p> <p>Maintain Pre-Fire plan files and update as required due to changes and/or annually.</p>	<p>296 Buildings:</p> <p>Thirty (30) evacuation plan updates</p> <p>296</p>	<p>NFPA 1, <i>Fire Codes</i> NASA-STD-8719.11</p> <p>Update plans on time, complete, and accurate on quarterly report, in accordance with DRD SA13-5.8.</p>

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
<p>Woodlands Fire Plan (SSC Only)</p>	<p>Develop a woodlands fire-fighting plan for SSC.</p>	<p>One (1)</p>	<p>Update plan on time, complete, and accurate on quarterly report, in accordance with DRD SA13-5.8.</p>
<p>Provide Mutual Aid (SSC Only)</p>	<p>Contractor should be familiar with any Mutual aid agreements on file between the Government and surrounding communities and provide aid in accordance with those agreements. Respond to offsite alarms for local community support.</p> <p>At least one company of fire responders shall remain at SSC at all times.</p>	<p>Six (6) agreements with the surrounding communities.</p> <p>Ten (10) responses</p>	<p>NFPA 1201, <i>Standard for Providing Emergency Services to the Public</i>, NFPA 1202, <i>Recommendations for Organization of a Fire Department</i>, NFPA 550, <i>Guide to the Fire Safety Concepts Tree</i>, NFPA 1500, <i>Standard on Fire Department Occupational Safety and Health Program</i>, NASA-STD-8719.11</p> <p>Notify the NASA Fire Protection Manager of Mutual Aid Responses within one (1) hour of the initiation of the response.</p> <p>Status activity on time, complete, and accurate on quarterly report, in accordance with DRD SA13-5.8.</p>
<p>National Fire Prevention Week (SSC Only)</p>	<p>Develop and promote a fire prevention awareness program in support of the annual National Fire Prevention Week and Safety Day.</p>	<p>One week and one Safety Day</p>	<p>Must be in compliance with NFPA Fire Prevention Week and Presidential Proclamation Activities.</p> <p>Status activity on time,</p>

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PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
			complete and accurate on quarterly report, in accordance with DRD SA13-5.8.
Design Reviews (SSC Only)	The Contractor shall support engineering design reviews in accordance with PWS Section 4.1 so as to ensure proper consideration of site emergency response capabilities.	Two (2) reviews monthly	Signed attendance sheet for each review attended. No missed engineering design reviews. Status activity on time, complete, and accurate on quarterly report, in accordance with DRD SA13-5.8.
Conference Participation (SSC Only)	SSC Fire Chief shall attend national level conference each year as designated by NASA.	One (1)	Share information with interested parties within seven (7) calendar days of return. File travel report with the SSC NASA Fire Protection Manager within seven (7) calendar days of return. Status activity on time, complete, and accurate on quarterly report, in accordance with DRD SA13-5.8.
Issue Small Appliance Permits (SSC & MAF)	Review request for small appliances and issue permits as appropriate.	600	SPR 8715.1 Status activity and findings on time, complete and accurate on quarterly report, in accordance with DRD SA13-5.8.
Issue	Review request for flammable storage	Twenty (20)	NFPA Standards

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PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
Flammable Storage Cabinets Permits (SSC Only)	cabinets and issue permits as appropriate.		NASA-STD-8719.11 SPR 8715.1 Status activity and findings on time, complete, and accurate on quarterly report, in accordance with DRD SA13-5.8.
Fire Alarm Response (SSC Only)	Respond to all fire alarms.	Twenty-four (24) hours per day	NFPA 1202, NFPA 1500, <i>Standard on Fire Department Occupational Safety and Health Program</i> , NASA-STD-8719.11 Responses and findings submitted on time and accurate on quarterly report, in accordance with DRD SA13-5.8.
Ambulance Response (SSC Only)	Respond to medical emergencies with certified EMT personnel.	Twenty-four (24) hours per day	NFPA 1004, <i>Standard on Fire Fighter Medical Technicians Professional Qualifications</i> , NASA-STD-8719.11 Responses and findings submitted on time and accurate on quarterly report, in accordance with DRD SA13-5.8.
Emergency Response (SSC Only)	Contractor shall provide / support all emergency responses that are not fire related.	Twenty-four (24) hours per day	NFPA 472, <i>Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents</i> , NASA-STD-8719.11

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
			Responses timely and findings submitted on time and accurate on quarterly report, in accordance with DRD SA13-5.8.
Fire Alarm Panels (MAF & SSC)	a. Fire alarm silencing. b. Fire panel trouble alarm silencing and troubleshooting. c. Resetting fire panels as required to clear alarms.	a. 100 b. 100 c. 100	Record activity daily in Fire house daily log.
Maintain Personal Gear (SSC Only)	Contractor shall maintain all personal equipment (i.e. boots, helmets, breathing apparatus, etc.). All equipment shall be maintained in a safe, operable condition, and replaced as necessary.	Daily	NFPA 1971, <i>Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting</i> Notify the NASA Fire Protection Manager within seven (7) calendar days of replacement of equipment status and replacement items.
Maintain Hazardous Chemical Response Trailer Inventory (SSC Only)	Contractor shall assure that the minimum inventory of materials and equipment is available for response support.	After each use	Inventory must be replenished within twenty-four (24) hours of use or determined shortage. 29 CFR 1910.120, <i>Hazardous Waste Operations and Emergency Response</i> Notify the NASA Fire Protection Manager within seven (7) calendar days of

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PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
			replacement of equipment/material status and replacement items.
Fire Alarm Report (SSC Only)	Develop a monthly report of all activity surrounding the response, containment, and investigation of an alarm.	Per response	SPR 8715.1 Completed report submitted on time and accurate on quarterly report, in accordance with DRD SA13-5.8.
Ambulance Report (SSC Only)	Develop report for all activities with regard to each medical emergency response.	Per response	Completed report submitted on time and accurate on quarterly report, in accordance with DRD SA13-5.8.
Fire Damage and HAZ-MAT Report (SSC & MAF)	Develop a report of all fires that result in a loss, as well as all hazardous spill incidents.	Per incident	Completed report submitted on time and accurate on quarterly report, in accordance with DRD SA13-5.8.
Emergency Response Report Log (SSC Only)	Develop a report of all emergencies requiring response.	Per response	NASA-STD-8719.11 Completed report submitted on time and accurate on quarterly report, in accordance with DRD SA13-5.8.
Monthly Report (SSC Only)	Develop a report of significant activities accomplished during the month.	Monthly	Completed report submitted on time and accurate on quarterly report, in accordance with DRD SA13-5.8.
Daily Log (SSC Only)	Develop a daily log of activities accomplished.	Monthly	Daily log should be available for review by the NASA Fire Protection Manager or COR upon request.
Outage Planning Support (SSC & MAF)	The Contractor shall assist in: scheduling, coordinating, and performing system outages for assigned SSC/MAF facilities, systems, equipment and utilities (FSEU),	As required	Zero (0) customer or facility manager complaints. No Outage impacts to

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PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
	including, but not limited to: Fire alarm and suppression. Provide support to work control and PM activities.		operations.

6.0 FACILITY OPERATIONS AND MAINTENANCE

A. Scope

This section addresses the maintenance and operational requirements for Facilities, Systems, Equipment, and Utilities (FSEU), Ground Support Equipment (GSE) and configuration controlled Special Test Equipment (STE). NASA requires the practice of several proactive methods for meeting NASA objectives and standards for the management of facilities maintenance, including, but not limited to, adopting Reliability Centered Maintenance (RCM) philosophies and procedures; and utilizing Condition Based Maintenance (CBM), Operator Based Maintenance (OBM) and Predictive Testing and Inspection (PTI) technologies, coupled with good business practices that are cost effective to accomplish maintenance.

B. System and Facility Descriptions

(Reference SSTI-8080-0013, Test Facilities Capability Handbook, located in Attachment J-10, *Reference Library*).

1. **Borrow Canal (MAF Only)** – A conveyance ditch in which all storm water runoff and treated wastewater from the Industrial Wastewater Treatment Facility (IWTF) is directed prior to being discharged via final external outfalls 001A and 004A. A total of seven (7) internal outfalls discharge into the Borrow Canal and waters are discharged offsite via two (2) external outfalls in compliance with MAF's Louisiana Pollutant Discharge Elimination System (LPDES) Permit.
2. **Control Systems** – Facility systems, usually based on Programmable Logic Controllers (PLCs), used to control the operation of facility systems (i.e., sequencing of facility valves, operations of pumps and vaporizers, etc.). Most controlled systems are usually powered by 28 VDC uninterruptible power supply systems.
3. **Communication Systems (SSC Only)** – Internal systems consisting of headsets, communication boxes, and associated circuitry in numerous locations that allow voice communication among the control centers, support areas, and test facilities during operations.
4. **Cryogenic Facility (SSC Only)** – Cryogenic propellant, oxidizer and inert cryogen receiving, storage, and delivery systems, to include bulk storage at all test facilities. These systems include six (6) liquid oxygen barges, three (3) liquid hydrogen barges, and bulk storage tanks at the E-complex and High Pressure Gas Facility (HPGF).
5. **Data Processing (SSC Only)** – Data processing is the process of converting raw digital data into engineering units in a format that can be used for engineering processing analysis. This conversion is provided for in both Low Speed Data Acquisition Systems (LSDAS) and High Speed Data Acquisition Systems (HSDAS) and may be either in the time domain or frequency domain.

6. **Deluge Water Systems (SSC Only)** – Water systems (either potable or industrial) that provide deflector/diffuser cooling for engine testing and are also available fire suppression in the event of a fire or other catastrophic event.
7. **Deionized Water (DI) (SSC Only)** – A system that converts potable water to deionized water. DI water on the test facilities is typically used for supplying coolant to test articles and high frequency dynamic pressure transducers.
8. **Demineralized Water System (MAF Only)** – Demineralized (DM) water is produced within the Systems Engineering Building (130) and the Industrial Wastewater Treatment Facility (IWTF) Operations Building (173) for distribution to Building 131; the Vertical Assembly Building 110; the Manufacturing Building (103) pre-clean room, clean rooms, chemical clean line and labs; and the Component Ablator Facility (318). DM water is stored in one 750,000 gallon and one 500,000 gallon tank in 190 Tank Farm. Buildings 130 and 173 combined produce 550 Gallons per Minute (GPM) of DM water at:
 - Conductivity ≤ 0.00002 siemens/cm
 - 6 – 8 pH
 - Heat sterilized
 - Filtered to 10 microns
9. **Electrical (13.8 kV Main Substation)**
 - a. **SSC:** There are 3 main 115-13.8kV step-down substations which provide commercial utility power into Stennis from Mississippi Power Company (MPCo) and are maintained under contract by MPCo. The Main substation, located near the South entrance gate, provides 13.8 kV power to a majority of the Stennis complex. Additional power is provided by a small step-down substation (Saturn Drive) located within the secured test area, and another (Leonard Kimball Drive) which serves facilities in that area. Another 13.8 kV substation located adjacent to Building 4400 is used to route power to the engine testing facilities, and allows for selection of either commercial utility power or generator power from Building 4400. This substation is for switching of 13.8 kV only (no 115 kV equipment) and is not under an MPCo contract.
 - b. **MAF:** Electrical power, provided by Entergy, Inc., is transmitted from two offsite Entergy substations (maintained by Entergy) to the MAF at 115-kV to two onsite master substations (four transformer with capacity 20MVA each) located near the northeastern and northwestern corners of Building 103. Various switches at each of the onsite master substations are maintained by Entergy. (Reference MAF Electrical One-Line Diagram, Attachment J-1, Appendix A).
10. **Electrical (SSC - 13.8 kV Switching Facilities)** - Overhead line switching is accomplished by line crews using pole mounted switches of varying configuration such as fused cutouts, gang-operated switches, as well as automatic reclosers. Underground circuits and primary disconnects in metal-clad switchgear feature SF-6 switches.

11. **Electrical (SSC – 4160 volt Generating System)** - The emergency power generation system is a secondary system located within the HPIW facility, which includes the electrical distribution system within the facility to ensure backup power as necessary. The emergency generation system consists of four (4) diesel-driven generators and associated switchgear, controls, and instrumentation.
12. **Electrical (Electrical Distribution)**
 - a. **SSC:** The 13.8 kV distribution system is composed of both overhead lines and underground feeds arranged in pairs of dual-radial feeds. Selectivity is provided throughout the system to allow for isolation and repair of areas as needed. Overhead circuits feature typical overhead-line construction and underground circuits terminate into above-ground cabinets with SF-6 switches.
 - b. **MAF:** From the master substations, the power voltage is reduced to 13.8 kV and distributed to 70 secondary low-voltage substations (13.8kV to 480V) via a radial loop feeder system throughout the site. The two master substations also are internally looped, which allows both to be independently or jointly operated and permits routine preventive maintenance and continuous maintenance.
13. **Electrical (Medium Voltage Transformers)** - Medium voltage transformers range from pole-mounted pot-type to oil filled open air/forced air substation units. Many Polychlorinated Byphenols (PCBs) transformers have been removed, with a few remaining.
14. **Electrical (Secondary Distribution Equipment)** - Secondary distribution equipment in larger or critical facilities such as test stands and support buildings will normally be unit substation metal-clad switchgear. The secondary distribution breakers are often arranged in a Main-Tie-Main configuration for selection of power from redundant 13.8 kV primary sources.
15. **Electrical (Substation Monitoring System)**
 - a. **SSC:** NASA acquires status information about the 13.8 kV electric distribution system via remote monitoring of site-wide components. MPCo provides real time substation status for its three (3) 115 kV/13.8 kV step-down electric substations at SSC (available for viewing in the EMCS control center, SSC B-8000). Government-owned systems provide real time status for a critical subset of government owned, SACOM operated, 13.8 kV air-break switches that are located throughout the site.
 - b. **MAF:** (Powerlogic System) – The system used to monitor and manage MAF power distribution system. The system consists of power quality meters, predominately Powerlogic series 4000 devices, for monitoring of electrical consumption and power quality. All real time and historical data are transmitted to

a central server and accessed from a web browser. Trending reports from real time and historical records help monitor and understand energy usage of a particular system or location and aid in determining the effectiveness of the energy conservation efforts. Other major benefits of the system include the ability to improve system reliability by identifying power quality conditions such as harmonic and transient, determine cause and effect of power quality problems from the load or from the supply side, assist with design decisions, and conduct capacity planning studies.

16. Emergency Power Backup Systems

- a. **SSC:** Critical administrative and data-center buildings have either diesel or bi-fuel (e.g., diesel/natural gas) generators feeding into manual or automatic transfer switches. Sensitive computer equipment in data centers is fed power through central Uninterruptable Power Supplies (UPS).
- b. **MAF:** Production critical/sensitive equipment/systems have either diesel generators or UPSs. Essential emergency electricity is fed from Building 345 where four (4) diesel engine generators provide backup power for United States Department of Agriculture (USDA) operations. These generators can provide 6.0MVA at 13.8 kV line to line. There are also eight-teen (18) stationary and five (5) portable diesel generators, ranging from 3.5kW to 1,000 kW, located throughout the site that are capable of producing 7.1Megawatts (MW) to backup production critical processes, emergency lights, sanitary lift stations, storm drain pumping stations and communications.

17. Energy Management and Control Systems - The site-wide Energy Management and Control System (EMCS) at each Center is used for control of building systems, primarily HVAC equipment such as boilers, chillers, air handlers, and cooling towers. This system features central control consoles which communicate to field control panels by way of an Ethernet VLAN which is managed by NASA and a separate IT support contractor. Central monitoring hardware, software, field panels and other EMCS devices are predominately manufactured by Siemens, Inc. (SSC) or Johnson Controls Inc. (MAF).

18. Facility Fire Protection Systems - In addition to fire detection and alarm systems, many buildings have sprinkler systems of various configurations (wet pipe, dry pipe).

19. Fire Detection and Security Systems - The site-wide fire alarm system at each Center is comprised of fire detection panels within the facilities linked to a Central Station, at each Center, with 24 hour monitoring. There is a mix of both zone alarm and addressable systems which communicate to/from the Central Station through Monaco transceivers (SSC) and a Local Area Network (LAN) (MAF). The system monitoring software, fire detection panels and field detection/annunciation devices are predominately manufactured by Siemens, Inc. (SSC) or SimplexGrinnell (MAF). The Contractor shall notify Security and the Fire Department prior to putting the fire system in bypass in support of maintenance or construction activities.

20. **Fire Water System** - Fire water is supplied to the MAF mains from an onsite one million gallon water storage tank and from the Sewage & Water Board. The firewater pumps, located at Building 201, will pressurize the fire water distribution system throughout the MAF, except at Buildings 320, 321, 350, 351, 352, and 404, which obtain firewater from the domestic mains. A 200,000-gallon elevated storage tank (152 feet) located west of Building 110 provides water storage and will pressurize the system to 66-psig if the other pressurizing equipment should fail. (See Potable water definition for SSC)
21. **Fuel Management Monitoring Systems (SSC Only)** - The fuel management monitoring system is manufactured by Veeder-Root, Inc. This system consists of fuel level sensing equipment which communicates to a workstation located and monitored at the EMCS control center.
22. **Grounding Systems** - Building power grounding systems are composed of grounding cables and rods, and require periodic testing and repair.
23. **Helium (GHe) Spin Start System (SSC Only)** – A facility system that supplies high pressure helium to the engine turbopumps during the engine startup sequence. The high pressure helium imparts an initial spin to the turbopumps during the ignition bootstrap ignition sequence.
24. **High Pressure Gas (HPG) System**
 - a. **SSC:** The HPG System is used to create and distribute high-pressure gases throughout the test site to different facilities. This system includes bulk storage tanks, compressor units, pump units, vaporizers, distribution lines with associated components, tube bank trailers and remote gas storage bottles and equipment. The gases generated and distributed include hydrogen, nitrogen, helium, and air.
 - b. **MAF:** The MAF LN2/GN2 conversion facility (Bldg. 175) converts liquid nitrogen to gaseous nitrogen and distributes throughout the facility at pressures of 125 psig and 4000 psig, respectively. Gaseous Nitrogen is supplied to Buildings 130, 110, 114, 318, 420, and 451.
25. **High Pressure Industrial Water (HPIW) System (SSC Only)** - The HPIW System is required for deluge and fire suppression. This system includes ten (10) pump assemblies, a water reservoir, canal pumping station, and piping and water valves along with associated hardware for the distribution of HPIW throughout the A/B Test Complex.
26. **Heating, Ventilating and Air Conditioning (HVAC) Systems** - Site HVACs consist of a variety of equipment and systems used for the purpose of maintaining temperature, humidity and air quality conditions within design limits. HVAC includes chillers, DX unitary equipment, boilers, air handling equipment, piping systems, pumps, cooling towers, exhaust systems, refrigeration equipment, instrumentation and controls, and

peripheral equipment required to control temperatures, humidity conditions, and air quality.

27. **High Speed Data Acquisition System (HSDAS) (SSC Only)** – Signal conditioning and digitizing system used to collect analog data on the test facilities usually from the test article. High speed systems usually consist of 32 to 128 analog channels and sample at a nominal 102,400 samples per second (sps). High speed data generally consist of dynamic pressures, accelerometers, and other measurements of with a required bandwidth of greater than 1000 Hz.
28. **Hydraulic Systems** – Hydraulic oil systems including piping, accumulators and pumps used for actuating facility and special test equipment valves. Facility hydraulic systems typically operate at a nominal 3000 PSIG.
29. **Hydrogen Fire and Gas Detection Systems (SSC Only)** – A facility system comprised of fire and gas sensors and panels that provide detection and alarm visibility into the location of gaseous hydrogen leaks and fires.
30. **Industrial Wastewater System (MAF Only)** - The system collects waste from specific areas and discharges it through lift stations to the Industrial Wastewater Treatment Facility (IWTF). The system consists of an above ground force main system with thirteen (13) lift stations. These lift stations transfer the collected waste to the IWTF where it is treated by demineralization for reuse in the plant, or chemically treated for discharge into the Borrow Canal.
31. **Instrumentation** – Facility instrumentation is installed for real time display of facility processes and data recording, does not include test article instrumentation.
32. **Lighting Systems** - Includes exterior lighting for roadways, parking areas, safety, and security; interior general lighting for buildings/facilities; emergency and exit lighting; obstruction and warning lighting; etc. Components include fixtures, lamps, reflectors, ballasts, lenses, diffusers, light poles, conductors, conduit, photocells, timers, fuses, switches, power supplies, batteries, and associated hardware. Lamp types vary and include, but are not limited to, incandescent, compact florescent, fluorescent, High Intensity Discharge (HID), etc.
33. **Lightning Protection Systems** - Larger buildings and buildings which have high-value electronic equipment and buildings used for storage of pyrotechnics or ordinance feature lightning-protection equipment such as air terminals, grounding cables, and grounding rods.
34. **Low Speed Data Acquisition System (LSDAS) (SSC Only)** – Signal conditioning and digitizing systems used to collect analog and discrete data on the test facilities from both the facility and the test article. Low speed systems usually consist of 512 to 1024 analog channels and sample at a nominal 250 sps. Low speed data generally consist of static

pressures, temperatures, and other measurements of with a required bandwidth of less than 100 Hz.

35. Marine Systems

- a. **SSC:** Marine systems are a series of locks and canals that are required to transport propellants and devices to and from tests stands and to move devices between the Pearl River and the canals. Marine systems are also defined as the NASA Tugboat and barges used on and offsite to move material from one location to another. Marine Systems include, but not limited to: the NASA Tugboat (Clermont II); a double spanned, counter-balanced Bascule Bridge controlled by variable speed electric motors; a navigation lock that allows marine traffic to transition from the canal to the river; approximately six (6) miles of canals banked with rip-rap and docks; a canal pumping station used to pump water from the river into the canal to maintain water level; a spillway system; fifteen (15) docks with associated mooring dolphins and devices, for loading/unloading liquid oxygen; twelve (12) docks with associated mooring dolphins and devices, for loading/unloading liquid hydrogen; skiff with outboard motor; and various water structures, navigational aids, three (3) work barges, piers, safety equipment, and operating supplies.
- b. **MAF:** The Michoud marine systems are defined as the Michoud Harbor, NASA Barge Pegasus, Utility Boat Pelican, and office/storage facilities. Marine Systems also include but are not limited to, loading docks and berth spaces, associated harbor pilings, buoys, mooring dolphins, and utilities.

The Michoud Harbor has a total berthing space of 104 ft. with a maximum berth width of 60 ft. The maximum dock load is 244,000 lbs. The maximum size deck barge that can be navigated through major local water channels is approximately 100 ft. by 400 ft. Height restrictions to reach various ports will change by season, due to water levels.

- 35. Natural Gas System** - The natural gas system includes, but is not limited to, the piping, meters, odorizing station, regulators, and accessories which distribute natural gas from the suppliers metering station to the points of utilization. (Exception for SSC: All distribution piping and accessories servicing the 9000 series buildings at SSC, from the Supplier's metering Station to the point of utilization, including the building-level meters, are the property of the Gas Supplier).

36. Potable Water Systems

- a. **SSC:** The potable water system provides for the generation, treatment, storage, and distribution of water for domestic purposes per the applicable State Health Regulations, as well as for fire protection. The system includes, but is not limited to, the following elements, with all the associated appurtenances and ancillary equipment: four wells approximately 1300' deep, with centrifugal pumps, four (4)

elevated storage tanks, secondary booster pumps, distribution mains, automatic chlorine analyzers/injectors and a comprehensive cross-connection program.

- b. **MAF:** Potable water, provided by New Orleans Sewage and Water Board (S&WB), is supplied via an offsite twelve (12) inch underground main, that feeds five (5) onsite feeder mains (two (2) @ twelve (12) inch, two(2) @ eight (8) inch, one (1) @ four (4) inch). One of the 12” lines is connected to an onsite million gallon water storage tank; local potable water pumps deliver water to the points of utilization.

37. Propellant Systems (SSC Only)

- a. **Liquid Hydrogen (LH₂)** – The LH₂ dock and transfer systems provide LH₂ storage and transfer before, during, and after testing.
- b. **Liquid Oxygen (LOX)** - The LOX dock and transfer systems provide LOX storage and transfer before, during, and after testing.

38. Road Systems

- a. **SSC:** There are approximately 112 miles of primary and 47 miles of secondary roads at SSC.
- b. **MAF:** Road systems can be characterized as three types:
 - 1) **Arterial** – The arterial road may be defined as a major traffic artery for movement of a large number of vehicles with the least interference possible. Arterial roads at MAF include Mercury Drive, Venus Drive, and Saturn Boulevard.
 - 2) **Local** – The local roads provide direct access to land and building. Local roads at MAF include portions of Uranus Avenue, Earth Drive, Neptune Avenue, Mars Drive, Jupiter Avenue, and Pluto Drive.
 - 3) **Collector** – These roads collect traffic from local streets and feed this traffic to the arterial roads. Collector roads at MAF include portions of Uranus Avenue and Mars Drive. Finally, there are numerous parking lots located throughout the site for vehicle parking. There is a total of 351,267 square yards of paved roads.

39. Sanitary Sewage Systems

- a. **SSC:** The main site-wide system is comprised of underground gravity lines and forced mains, as well as lift stations which collect and transfer domestic wastewater from the buildings/facilities to treatment lagoons. Treatment at the lagoons is accomplished mainly via the use of aquatic plants. Final discharge of the effluent passes through an Ultra Violet disinfectant system before entering nearby creeks. Additionally there is a rock-reed system serving small remote buildings at

each of the two entrances to the Center, as well as a mechanical package unit at SSC, B-9155.

- b. **MAF:** The sanitary sewage system consists of an underground piping system of four 10 inch gravity lines, small pumping stations, and lift stations that collect sanitary waste and transport it through a twelve (12) inch force main to a central lift station located northeast of the MAF. The sewage is then fed to a thirty (30) inch New Orleans Sewage and Water Board (S&WB) force main for final discharge and treatment. The system serves all buildings and structures at MAF. The total capacity of the sewage ejector pumps is more than 3,000 gallons per minute transported through the twelve (12) inch force main to the S&WB collection system.
40. **Test Control Center** - This facility houses control system equipment as serves as the central command location for the test conductor and personnel.
41. **Triethylaluminum (TEA) and Triethylborane (TEB) Ignition System (SSC Only)** – Facility and Special Test Equipment (STE) systems used for filling, storing, and transporting TEA/TEB test article ignition canisters. Also systems used to inject TEA/TEB into test articles. TEA/TEB is a pyrophoric used to ignite engine propellants. The TEA/TEB used at SSC is usually an 85/15 mixture.
42. **Video Systems (SSC Only)** – Low speed and high speed video systems used for test article and facility monitoring. These systems may consist of a combination both standard and high definition cameras and associated supporting equipment.

C. Limitations, Restrictions, and/or Special Conditions

Skills associated with performing work defined in this section of the PWS shall include, but not be limited to, electrical, electronic, HVAC, mechanical, plumbing, carpentry, painting, welding, and machining. Personnel shall possess the knowledge, skills, and experience necessary to identify discrepancies/anomalies that require corrective action and/or need supervisory or engineering review/notification.

1. Welding

Welding work may consist of shop and/or field fabrication for the manufacture, repair, and/or modification of onsite structures, piping, pressure vessels, equipment and other various fabrications, and assembled items. The Contractor must be able to weld complicated structures and possess the capability to weld various steel alloys and other metals, such as:

- Stick Metal Arc Welding (SMAW)
- Gas Tungsten Arc Welding (GTAW)
- Gas Metal Arc Welding (GMAW)
- Flux core welding

- The use of other techniques such as silver soldering, arc gouging, and oxygen/acetylene cutting/welding to achieve exceedingly high quality end results.

2. **Machining**

The majority of machine work is performed in a machine shop environment; however, there are requirements for field work. (i.e., reface a flange surface on an existing piping system). Machining tolerance requirements are stringent for some components of technical systems (i.e., cryogenic systems, propellant systems, etc.). The Contractor must be able to provide precision machining capabilities with materials such as:

- Stainless steel alloys
- Carbon steel
- Various alloys
- Other metals and non-metallic materials such as Teflon.

Components must be manufactured to strict design criteria and pass rigid inspection criteria. Tolerances must meet or exceed the accuracy given in the SSC engineering standards SSTD-8070-0098-SHOP, *John C. Stennis Space Center Machine Shop Tolerances*, or drawings as applicable. Personnel must be able to:

- a. Interpret sketches and verbal requirement definitions and then be able to manufacture the items in accordance with engineering standards.
- b. Operate the machining equipment and tooling identified in the Attachments J-1 and J-9. The Contractor shall assess and report on the operating condition of the equipment before it is taken out of service.

3. **Asbestos/ Lead Paint Removal/ Abatement**

The Contractor shall provide personnel trained and certified in asbestos/ lead paint removal/ abatement. MAF/SSC infrastructure may contain asbestos/ lead paint which will require special handling and disposal.

- a. Eliminate the potential hazard of asbestos containing material (ACM), either by repair or removal of the damaged ACM, when performing maintenance activities. All ACM work shall be performed in accordance with the applicable local, state, and federal requirements. These requirements included, but are not limited to:
 - 29 CFR 1926.11.1, *Asbestos in Construction*
 - 40 CFR Subpart M, *National Emission Standard for Asbestos*
- b. Lead paint abatement/removal work shall be performed in accordance with the applicable local, state, and federal requirements.

D. General Requirements

1. SSC and MAF Requirements

The Contractor shall maintain and operate all FSEU, GSE, and configuration controlled STE in accordance with NPR 8831.2, *Facilities Maintenance and Operations Management*, SOI-8080-0021, *Engineering and Test Directorate Maintenance* and SOI-8080-0015, *Configuration Control of Technical Systems*. NPR 8831.2 establishes the NASA's minimum maintenance objectives and standards for management of facilities in support of NASA Policy Directive (NPD) 8831.1, *Maintenance and Operations of Institutional and Program Facilities and Related Equipment*, and NPD 8700.1, *NASA Policy for Safety and Mission Success*. NPD 8831.1 requires continual assessments of FSEU conditions so as to identify and quantify Deferred Maintenance (DM) in an effort to be eighty percent (80%) accurate at any time. Facilities are in a constant state of change due to normal wear and tear, renewal tasks, and reconfiguration; the Facility Condition Assessment (FCA) process must be dynamic if an accurate estimate of the Centers' condition is to be obtained. All DM should be maintained in the CMMS.

The *Operations & Maintenance Equipment* list and *Facility Services* list shown in Attachment J-1, Appendix A, along with the Property Lists identified in Attachment J-9, identify all FSEU for which the Contractor is responsible for operating and maintaining. The Contractor shall develop, schedule and perform any tasks necessary (if applicable) to achieve system reliability and availability. The Contractor's approach shall be submitted as an *Operations and Maintenance Plan* in accordance with DRD GA01-6.0 addressing how the Contractor intends to meet the requirements of this section of the PWS. The Plan shall include, but not be limited to:

- a. Ensuring a skilled workforce.
- b. Providing a strategy for implementing RCM, CBM, and OBM.
- c. Providing a maintenance/repair program for all Government property.
- d. Implementing differing levels of Operations & Maintenance (O&M) based on facility activity status as referenced in NPR 8800.15B, *Real Estate Management Program Implementation Manual*.
- e. Reduction in planned maintenance activities by incorporating CBM technologies and other strategies, using life-cycle cost effective measures (targeting a three percent (3%) reduction per year against the approved first year *Operations and Maintenance Plan* as the baseline for the reduction calculations).

Operations and Maintenance Historical Job Plans have been provided in Attachment J-10 for reference only.

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All operations as specified in this PWS are Core requirements. Maintenance identified in this PWS is also a Core requirement, with the exception of the following: corrective maintenance greater than or equal to \$50,000 (as referenced in PWS Section 6.2.2, *Corrective Maintenance*), construction, fabrication, manufacturing, and test services are IDIQ. Operations and maintenance to support tenants/customers that will require additional work, outside of the core requirements, are also IDIQ.

The Contractor shall have the capability to provide a Certified Commissioning Agent to perform retro-commissioning of existing buildings. The Contractor shall address their plan to perform retro-commissioning in their *Operations and Maintenance Plan* (DRD GA01-6.0). All retro-commissioning activities are IDIQ.

O&M requirements shall be recorded in the CMMS for the purposes of identifying discrepancies and tracking the history of all O&M for FSEU. The CMMS shall have the following minimum capabilities:

- a. Storing equipment records. (Reference PWS Section 2.2)
- b. Storing job plans/instructions for all recurring work (i.e., inspections, preventive maintenance, etc.).
- c. Tracking and scheduling O&M activities/work orders. Work order records shall collect the following data at a minimum:
 - Unique work order number
 - Work description
 - Work type
 - FSEU equipment number
 - FSEU or work location
 - Each date work is performed
 - Personnel performing work
 - Authorizations obtained, if applicable
 - Documentation of work performed, discrepancies/anomalies found, etc.
 - Deferral code, if applicable
 - Cost (estimates and actual)
 - All actions taken, including routing and disposition of work orders
- d. Attaching photos, documents, reports, etc. to an equipment or work order record.
- e. Routing work orders for review/approval.
- f. Accessing existing historical maintenance data for trending and reporting.
- g. Providing accessibility to the Government.

The Contractor shall record the appropriate work type for each activity to ensure accurate reporting. The following work types shall be used for all O&M activities, including work by other organizations in support of O&M activities:

- Operations (OPS)
- Programmed Maintenance (PGM)
- Planned Maintenance (PLM)
- Preventive Maintenance (PM)
- Proof Load (P/L)
- Repair (RP)
- Predictive Testing and Inspection (PTI)
- Predictive Testing and Inspection Repairs (PTIR)
- Replacement of Obsolete Items (ROI)
- Trouble Calls (TC)
- Service Requests (SR)

The Contractor shall begin maintenance and operations of added equipment as soon as it is placed in service. Additionally, the Contractor shall assign and install equipment numbers, and create a corresponding equipment record in the CMMS in accordance with PWS Section 1.3.2. The Operations and Maintenance Plan shall be updated to address the new equipment and its required maintenance. The Contractor shall maintain equipment status information to align with the facility activity status as referenced in NPR 8800.15B, Real Estate Management Program Implementation Manual (active, inactive, abandoned, mothballed, and standby).

Prior to initiating work on assets, and when applicable, the Contractor shall scan the appropriate bar code to ensure work is being performed on the correct asset. All annotated discrepancies/anomalies shall be properly dis-positioned for further review/action. All actions shall be documented in the CMMS.

2. SSC Only Requirements

The Contractor is responsible for maintaining the SSC System Operations and Maintenance Responsibility Database (SOMRD) in accordance with SSTD-8070-0010-CONFIG, *Maintenance of the SSC System Operations and Maintenance Responsibility Database (SOMRD)*. The SOMRD data shall be accessible on the SSC Intranet Portal.

Maintenance and operational processes covered by the Process Safety Management (PSM) program shall be performed in accordance with SOI-8715-0002 E&TD Process Safety Management Program.

E. Reporting Requirements

The Contractor shall develop, maintain, and ensure the following deliverables are accurate and timely as defined in the specific DRD(s) listed below:

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DRD FA06-6.0
 DRD FA07-6.0
 DRD GA01-6.0

Reliability Centered Maintenance (RCM) Metric Report
HQ Functional Performance Metric Report
Operations and Maintenance Plan

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
6.0 Facility Operations and Maintenance			
Operations and Maintenance Plan	Provide an Operations and Maintenance Plan (in accordance with DRD GA01-6.0) to address how the Contractor intends to comply with the requirements of PWS Section 6.	One (1)	In accordance with the DRD GA01-6.0.
Deferred Maintenance Assessment	Support the NASA Headquarters annual Deferred Maintenance (DM) Assessment of all facilities	2 weeks SSC: 1 week long period MAF: 1 week long period	Complete assessment of all facilities on time
OMFIT	Support NASA HQs sponsored Operations and Maintenance Facilities Innovation Team (OMFIT) monthly VITS and Face-to Face meetings.	1 VITS monthly; 2 presentation; maximum of 2 face-to-face meetings	Participation by subject matter experts for at least 95% of all OMFIT elements
Asbestos Hazard Control Floor Plans (SSC Only)	The Contractor shall update Asbestos Hazard Control Floor Plans (AHCFCP) when building modifications impact the current AHCFCP. The Contractor shall coordinate with NASA to post AHCFPs on SSC Environmental web page.	As ordered, minimum of one per year	Update AHCFCP within 30 days of building modification. Update website within 30 days of updated AHCFCP.
Change Log (SSC Only)	The Contractor shall maintain a change log to track, at a minimum, all buildings (and specific area) where asbestos exists, the date building modifications that change the AHCFCP was performed, the date the AHCFCP was updated.	N/A	Updated change log and make available for inspection by the Government. Respond to request for inspection within 2 days.

6.1 Facility Operations

A. Scope

This section identifies the day-to-day operation, standing, recurring, and miscellaneous core requirements for the operations of FSEU, GSE and STE.

B. Limitations, Restrictions, and/or Special Conditions

Operators of the MAF Utility Plant shall possess a current city of New Orleans first or second class operating engineering license with Boilers and HVAC systems.

The Contractor shall possess a State of Louisiana Class 4 Wastewater Operator license and Class 4 drinking water Treatment and Distribution Systems license to operate the MAF Industrial Wastewater Treatment Facility and the MAF emergency drinking water well.

NOTE: Refer to PWS Section 5.7 for requirements associated with EMCS Operations.

C. General Requirements

The Contractor shall operate FSEU, GSE and STE as defined in the CMMS, as referenced in Attachments J-1, *Appendix A, Additional Workload Data*, and J-9, *Government Furnished Property*, and as covered in this document, providing cost effective and energy efficient usage.

Operational inspections shall be documented with time/date, items inspected, conditions found, actions taken, and identification of inspector. Information shall be available for Government review.

Recurring operations shall be documented and managed in the CMMS and in accordance with an SOP developed in accordance with DRD GA02-6.1, *Standard Operating Procedures*.

Major configuration changes or changes which place the FSEU, GSE and STE in an abnormal configuration shall be accomplished with a UPP in accordance with DRD GA03-6.1, *Utility Process Plan (UPP)*. If the change is accomplished with a SOP, then the UPP is not required.

Discrepancies found during the performance of preventive maintenance activities on test stands and test support systems, facilities utilized in rocket propulsion testing shall be documented and repaired using the problem reporting (PR) process per SOI-8080-0027, *E&TD Operations Work Control*. Non-conformances requiring minor corrective maintenance may be noted and corrected as part of the MI, DOP or TPS.

The Contractor shall support operations necessary to protect and preserve FSEU, GSE and STE under adverse weather conditions (i.e., freezing weather, storms).

D. Reporting Requirements

The Contractor shall develop, maintain, and ensure the following deliverables are accurate and timely as defined in the specific DRD(s) listed below:

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DRD GA02-6.1 *Standard Operating Procedures*
 DRD GA03-6.1 *Utility Process Plan (UPP)*
 DRD GA04-6.1 *Boiler Certification Plan*
 DRD GA05-6.1 *Elevator Inspection Report*

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
6.1 Facility Operations			
Availability	Systems/equipment shall be maintained and operated in a manner that protects the availability, reliability, and redundancy of equipment and/or systems through their life cycle.	See Attachments J-1, <i>SACOM PWS</i> , and J-9, <i>Government Furnished Property</i>	No loss of system/equipment availability due to Contractor's neglect or deficits.
Test Support Facility Operations	Test Support Facility Systems/equipment shall be maintained and operated in a manner that protects the availability, reliability, and redundancy of equipment and/or systems through their life cycle.	Dependent on the project activity level	No test delays or impact to daily test support operations as a result of the loss of system/equipment availability due to Contractor deficiencies. All anomalies that affect the operations of test support facilities shall be documented in a problem report (PR). Resolution of anomalies shall be performed in a manner as to minimize the potential impact to the daily operations of the facility in question.

6.1.1 Boiler House (MAF Only)

The Contractor shall manage and operate all steam boilers, chillers, plant air systems, potable

water, fire water and storm water drainage pumps in accordance with local, state, and Federal regulations, as well as MAF permit requirements. These activities shall include, but are not limited to, management and operation of boiler, chiller, plant air compressor, and storm water pumps and associated equipment (i.e., condensate pumps, feed water pumps, etc.) in Building 207; outlying buildings/equipment rooms; performance of daily rounds; and periodic inspection of systems to ensure operations availability and safety oversight.

The Contractor shall:

1. Provide an independent inspector in accordance with the ASME Boiler and Pressure Vessel Code (BPVC) to perform annual boiler inspections in accordance with DRD GA04-6.1;
2. Continuously monitor Building 207 equipment and monitor remote buildings equipment every eight (8) hours; and
3. Operate boilers at a minimum of eighty percent (80%) efficiency and chillers at a minimum seventy percent (70%) load efficiency.

6.1.2 Landfill Operations (SSC Only)

SSC has a Class A and Class II Landfill. The Landfill shall be operated in accordance with Permit No. SW02401B0376, the MDEQ Non-hazardous Waste Management Regulations, Section 17-17-1. et seq., Mississippi Code 1972 and local operating procedures.

6.1.3 High Pressure Gas (HPG) System Operations (SSC Only)

The Contractor shall operate the HPG systems and all equipment at the HPG Facility in such a manner that protects the availability, reliability, and redundancy of equipment and/or systems through their life cycle. Operating pressures have been established in accordance with SRD-RPT-0001, *Stennis Operational Rocket Propulsion Test Support Plan and Requirements*. The Contractor shall support the pressure vessel/system certification program in accordance with SPR-1740.1 *Pressure Vessel and Pressurized System Procedural Requirements* and as defined in PWS Section 3.5.

6.1.4 High Pressure Industrial Water (HPIW) Plant Operations (SSC Only)

The Contractor shall operate the systems and equipment at the HPIW Plant in a manner that protects the availability, reliability, and redundancy of equipment and/or systems through their life cycle.

Detailed coordination with the Engineering and Test Directorate is required in performance of the following functions, which are further defined in SRD-RPT-0001, *Stennis Operational Rocket Propulsion Test Support Plan and Requirements*:

1. Core Requirements

- a. When operated in support of a test, the HPIW pumps shall be brought on line approximately one (1) hour before the test and operated until after the test is completed. The HPIW operator shall remain in communication with the test conductor during this time to allow for quick response to all requests.
- b. The Contractor shall maintain all Exhaust Systems which fall under the RICE NESHAP Environmental Regulations in accordance with RICE NESHAP Guidelines. The Contractor shall additionally record and provide reports needed to meet the RICE NESHAP guidelines.

2. IDIQ Requirements

- a. The backup generators, located at the HPIW facility, support the A/B Complexes. The Contractor shall operate generators at the request of A/B Complex test operations personnel. Generators are normally used on test days to mitigate the potential for power fluctuations.
- b. The Contractor shall also provide services to support NASA's Standby Generation Agreement with Mississippi Power Company.

6.1.5 Cryogenic and Propellant Operations

The Contractor shall operate the cryogenic and propellant systems and equipment in such a manner that protects the availability, reliability, and redundancy of cryogenic and propellant equipment and/or systems through their life cycle. Operations necessary for maintenance activities, engine testing and the operations of the MAF LN2/GN2 conversion facility in support of manufacturing, are considered Core requirements.

SSC Only: Required operations include the offloading of cryogenics from delivery trucks into bulk storage at all test facilities. Required operations also include loading and unloading six (6) liquid oxygen barges, three (3) liquid hydrogen barges, six (6) gas trailers used for bulk delivery, and storage tanks at the E-complex and HPGF, as well as JP-8, RP-1, IPA, methane, TEA/TEB, hydrogen peroxide and any other propellants in use at SSC.

The Contractor shall coordinate barge deliveries to the SSC test complex.

NOTE: Requirements associated with propellant barge movements are addressed in the PWS Section 2.0.

6.1.6 Industrial Wastewater Treatment Facility (IWTF) Operations (MAF only)

The Contractor shall manage and operate the Industrial Wastewater Treatment Facility (IWTF) in accordance with local, state, Federal regulations, as well as MAF permit requirements. These activities shall include, but are not limited to, operation of associated equipment (e.g., Cyanide/ph/Chromium treatment units, pumps, storage tank, sand and carbon unit, sludge system

including filter press, and demineralized water system etc.), conducting inspections, and performance of chemical additions to tank farm.

6.1.7 Utility Operations

1. High Voltage Electrical Operations

All high voltage electrical operations require coordination with the appropriate power company's control center, as well as EMCS, and should be defined in an SOP and/or Work Instruction. All switch and breaker operations on the 13.8 kV Distribution System shall be coordinated with EMCS.

Operating high voltage electrical systems includes the process of inspecting high voltage busses, switches, overhead lines, and other 115kV and 13.8 kV components for visual damage, abnormal conditions or evidence of tampering; reading/recording meters; controlling access to substations; and securing areas when no one is present. The Contractor shall notify the appropriate power company immediately of any abnormal conditions.

2. Natural Gas Operations

The natural gas systems shall be operated to ensure a continuous flow of gas is available at all times and that systems are compliant with state requirements. The operation of the natural gas systems shall include, but is not limited to, reading meters and recording findings, maintaining natural gas logs, inspecting valves, inspecting distribution systems for leaks, providing operational support for gas curtailment, and identifying above ground markers.

3. Potable Water Operations (SSC Only)

The potable water system shall be operated in accordance with Permit Numbers MS0230015 and MS0230052 to ensure a continuous supply of water is available at all times and is compliant with State Health Regulations. The operation of the potable water system shall include, but is not limited to, flushing/sampling, reading/recording meters, maintaining daily logs, chlorine tank change-outs, freeze plan support, maintaining statistical data, and maintaining a backflow prevention program.

4. Sanitary Sewage Operations (SSC Only)

The Sewage collection systems shall be operated to ensure continuous collection, pumping, and removal of wastewater is provided at all times. The sewage system shall be operated to ensure that effluent water quality meets all applicable state regulations and permit requirements, without disruption of wastewater flow from all facilities. The operations of the sanitary sewage systems include, but are not limited to, monitoring/inspecting primary collection systems, monitoring treatment systems, reporting permit non-compliances, maintaining daily log of operator activities, and

maintaining statistical data such as peak flow rates, daily average flow rates, and pumping out oil/water separators and grease traps.

6.1.8 Marine Operations

NOTE: Requirements associated with propellant barge movements are addressed in the Section 2.0 of the PWS.

1. SSC Navigation Lock

Operations of the SSC Navigation Lock will be handled via an IDIQ task order with the exception of maintenance activities. The Contractor shall operate the navigation lock to support marine traffic between the Pearl River and the SSC canal system. Operation of this facility shall include all events of opening and closing the lock, adjusting and maintaining the water level, operation of controls, operation of tainter valves, and assisting in mooring boats and barges into and out of the lock. The Contractor shall operate the lock hydraulic system including pumps, motors, oil system, gate rams, and entire piping and tubing systems as part of this hydraulic power system. Operation includes calibration and operation of controls, electrical and electronic devices, and all devices associated with safe operation of the lock and lock control equipment. Operation of the lock shall also include inspections of marine safety devices, lock mooring devices, and replenishment of operating fluids.

The Contractor shall maintain a log in the Navigation Lock Control Building to provide historical information on all operations performed with dates and times. Information shall be available for Government review. Operations performed shall also be documented in the CMMS.

2. SSC Bascule Bridge Operations

Operations of the Bascule Bridge will be handled via an IDIQ task order with the exception of maintenance activities. Operators shall be trained and certified to operate this system. The bridge is of the bascule type and has North and South spans that are operated by electric motors which are assisted by counter weighting. The bridge controls are automatic through a Programmable Logic Controller (PLC); however, the operators must be trained and certified to be able to operate the bridge in “manual” as well as “automatic” mode.

The Contractor shall maintain a log in the Bascule Bridge Control Building to provide historical information of all operations performed with dates and times. Information shall be available for Government review. All bridge operations conducted shall also be documented in the CMMS.

3. SSC Canal Replenishing System Operations

The Contractor shall operate the four (4) vertical, electrically driven pumps to maintain

the canal level above the lock between sixteen (16) feet to sixteen (16) feet six (6) inches, as measured at the gauge on the canal lock wall upstream of the upper gates. This is necessary to ensure proper movement and docking of barges within the canal system.

NOTE: Spillway height is sixteen (16) feet and seven (7) inches.

4. MAF Port and Harbor

The Contractor shall manage and provide safe and efficient operation of MAF port and harbor. Responsibilities shall include, but not be limited to, the overseeing of docking and securing of Government-owned vessels, Government-contracted commercial vessels, and harbor preparation services for the loading/unloading of NASA program hardware, subassemblies and associated equipment. The Contractor shall:

- a. Operate the port and harbor in accordance with applicable maritime regulations.
- b. Provide support as necessary to the Government service provider responsible for security of the port and harbor.
- c. Operate a Government furnished utility boat to provide surveillance of all floating equipment in port and all adjoining port facilities and to take soundings in Michoud Slip as required.
- d. Coordinate and facilitate tenant(s)/customer(s) requirements for use of the MAF port, harbor, and dock.
- e. Properly secure all vessels in port in preparation for adverse weather conditions and take other precautionary measures as required to safeguard the port.
- f. Prepare barge for scheduled dry-docking and periodic shipyard operations including removal and storage of supplies, tools, and loose galley and machinery space equipment.

NOTE: Dry Dock maintenance of Government barge or utility boat will be handled via IDIQ.

6.1.9 Fluid Component Processing Facility (FCPF)

The Contractor shall:

1. Operate the FCPF as necessary for component inspections, repairs, cleaning, and packaging.
2. Operate the installed and tagged equipment listed in Attachment J-9, *Government Furnished Property*.

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3. Operate and maintain a clean line capable of cleaning parts, components, and tubing per MSFC-STD-3535, *Standard for Propellants and Pressurants used for Test and Test Support Activities at SSC and MSFC*. Services associated with field cleaning and testing of components, and/or removing components and sending to the FCPF for needed work; and services associated with reinstalling the components in the field, shall be accomplished in accordance with STP-8810-0018, *Technical Procedure for Field Maintenance Contamination Control and Field Certification of SSC Facility Transfer Systems Cleanliness* and SOI-8080-0030, *Contamination Prevention and Sample Control Procedure*.
4. Maintain an operating procedure that clearly defines safe operation of the facility.
5. Operate and maintain the pressure testing equipment for the certified pressure testing of relief valves and other components. Equipment shall be in calibration and able to test to design specifications.
6. Operate and maintain the tubing manufacturing system that is used to make flared tubing. Maintain the capability of manufacturing, bending, and installing high pressure tubing (up to 15,000 psi working pressure and up to two (2) inches in diameter).
7. Operate and maintain an area utilized for the inspection, buy-off, and packaging of cleaned components. The area is to be kept orderly, and components are to be available for Government inspection.
8. Provide services necessary to repair, test, clean, certify clean, package, and prepare any components, assemblies, or subassemblies for shipping. Document all inspections, testing, and repairs.
9. Perform cleaning and refurbishment services for fluid mechanical systems hardware and components, including those used in both GSE and flight systems, in accordance with MSFC-SPEC -164, *Cleanliness of Components for use in Oxygen, Fuel and Pneumatic Systems* and RPTSTD-8070-0001, *Surface Cleanliness Standard of Fluid Systems for Rocket Engine Test Facilities of the NASA Rocket Propulsion Test Program*. Upon request, cleanliness shall be certified to levels specified in NASA, Military, or other contractor specifications that are deemed comparable to those aforementioned.
10. Operate and maintain clean room facilities to ISO 14644-1 Part 1: *Classification of Air Cleanliness*, Class Seven (7), and ISO 14644-2 Part 2.
11. Schedule and prioritize work packages in accordance with customer need date, meeting or exceeding standards, specifications, and other customer requirements. Utilize DDMS to generate and process service requests and to provide updates in status, tracking, metadata, and complete artifacts of as-worked packages for all components being processed through the FCPF.

12. Systems/equipment shall be maintained and operated in such a manner that protects the availability, reliability, and redundancy of equipment and/or system through their life cycle. All anomalies that affect the operations of FCPF shall be documented and disposition utilizing DDMS.

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
6.1.9 FCPF			
Operation	<p>Schedule and prioritize work packages in accordance with customer need date meeting or exceeding standards, specifications or other customer requirements.</p> <p>Systems/equipment shall be maintained and operated in such a manner that protects the availability, reliability, and redundancy of equipment and/or systems through their life cycle.</p>	<p>30,000-34,000 man-hours craft labor; 9,000 man-hours engineering services</p>	<p>Component processing should not be delayed due to invalid processing materials</p> <p>Components processed through the clean line should not require rework.</p> <p>Rejection of certification prior to packaging or the rejection of components by the customer should not occur.</p> <p>Work packages shall be completed within the estimated schedule and within the estimated cost.</p> <p>Deviations to the estimates should not occur without customer approval.</p> <p>No test delays or impact to daily test support operations as a result of the loss of system/equipment availability due to Contractor deficiencies.</p>

6.1.10 Reproduction Services (IDIQ Only)

The contractor shall have the capability of performing reproduction services, to include

but not limited to, printing/duplication, micro imaging, color coping, engineering drawing reproduction, multicolor digital printing, aperture card plotting, document scanning and CD-ROM mastering and commercial printing procurement.

6.1.11 Other Building Equipment and System Operations

1. Built-In Cranes, Monorails, and Hoists

The Contractor shall conduct operations of built-in cranes, monorails, and hoists in accordance with NASA-STD-8719.9, *Standard for Lifting Devices and Equipment*, and SWI-8834-0001, *Lifting Devices and Equipment Management Plan*.

2. Elevators

The Contractor shall provide inspection and testing services as required for routine and periodic certification requirements of elevator and dumbwaiter systems in accordance with ASME A17.1, *Safety Code for Elevators and Escalators*. All inspections and tests shall be performed by a third party certified inspector provided by the Contractor in accordance with DRD GA05-6.1.

3. Generators

The Contractor shall document run time and provide input as needed for DRD EN07-3.4.

The Contractor shall be responsible for operation of emergency generators, including generator transportation, refueling, and interconnection into power distribution systems as required ensuring continuity of service to power systems for both planned and unplanned outages.

The Contractor shall conduct periodic inspections and/or testing of emergency generator systems to include documenting runtime, voltage and frequency, as well as starting battery bank voltage and engine oil level. Emergency generator systems equipped with an exercise function should be periodically inspected to ensure proper functionality.

4. Other

Operations of all remaining Contractor responsible FSEU, GSE and STE not previously addressed in this section shall be conducted in a manner that protects the availability, reliability, and redundancy of the equipment and/or systems through their respective life cycles.

6.2 Maintenance

A. General Requirements

A major maintenance goal for NASA is to continue moving in the direction of Reliability Centered Maintenance (RCM), utilizing remote monitoring and a proven CBM program. Real-time data is collected, trended, and analyzed to prioritize and optimize maintenance resources; certain parameters of systems/equipment are continually observed (i.e., Condition Monitoring) using predictive technologies such as infrared, vibration analysis and oil analysis. The ultimate goal of the Condition Based Maintenance (CBM) strategy is to optimize maintenance resources by reducing the amount of recurring maintenance activities and only react to downward trends in asset performance. Systems and/or equipment that are currently in the CBM program are identified in Attachment J-1, Appendix A, *Additional Workload Data*.

The transition from time based maintenance to CBM requires remote monitoring in conjunction with early detection of degradation through PTI techniques. Statistical analysis of historical data related to failures is performed to determine the optimal investment of maintenance resources and to determine the most effective risk assessment methods to use to identify those processes or systems that statistically exhibit the greatest chance of catastrophic failure. An existing cable network is utilized to connect condition monitored equipment to the EMCS. The Contractor shall perform conditioning monitoring, where applicable (e.g., review PTI data and/or parameters of equipment/system conditions) to identify impending equipment failures and schedule appropriate maintenance/inspection to prevent failure.

The Contractor shall investigate equipment failures and determine the actions necessary to prevent or mitigate similar failures. At a minimum, such investigations shall include a root cause failure analysis under the following circumstances: 1) When a piece of equipment experiences repeated failures; 2) When a critical piece of equipment (RCM Criticality Level 1 or 2) experiences a failure that results in a priority 1 or 2 type work task; and/or 3) When deemed necessary by the Government.

The Contractor shall perform a continuous review of equipment history, PTI data and industry practices, recommending changes/improvements to the current maintenance program so as to resolve operational deficiencies, improve performance, and increase reliability (e.g., proposed changes in PM/PTI frequencies, additions/removals of PM/PTI tasks, etc.). Changes and/or improvements to the current maintenance program and CMMS database require the approval of the NASA Center Operations Directorate, Operations and Maintenance Division.

The Contractor shall ensure FSEU, GSE and STE are kept clean (i.e., minimizing the accumulation of dirt, dust, mold, mildew, algae and corrosion).

The Contractor shall maintain all warranty documents in the CMMS and shall be responsible for coordinating with subcontractors to take full advantage of manufacturer/contractor warranty repairs when applicable.

B. Limitations, Restrictions, and/or Special Conditions

Maintenance of fire protection equipment and systems not specifically addressed in PWS 5.8, *Fire Protection Services*, shall comply with the requirements of PWS 6.0, as well as all appropriate NFPA Standards, NASA STD 8719.11, *Safety Standard for Fire Protection* and SPR

8715.1, *Safety and Health Program Requirements*. Maintenance shall include, but not be limited to, tests, inspections, repairs, and recharges.

Data trends of critical parameters on major FSEU, GSE and STE shall be accessible to the Government for review. Major FSEU, GSE and STE shall be defined as critical and/or high dollar equipment to include, but not to be limited to, emergency generators, compressors, pumps, chillers, boilers, and battery systems.

C. Reporting Requirements

The Contractor shall develop, maintain, and ensure the following deliverables are accurate and timely as defined in the specific DRD(s) listed below:

DRD FA08-6.2 *Facility Condition Assessment (FCA) Schedule and Report*

6.2.1 Preventive Maintenance (PM)

A. Scope

This section of the PWS identifies the routine PM requirements for FSEU, GSE and STE, for which the Contractor shall be responsible. PM includes day-to-day planned, periodic, scheduled, inspection, adjustment, cleaning, lubrication, and specified parts replacement required to preserve or restore a piece of equipment or a system to such a condition that it may be effectively utilized for its intended purpose and availability, and to preserve equipment reliability through its life cycle. This includes minor replacement or repair of worn or deteriorated components (i.e., parts are on hand and the duration of the added effort is not more than two (2) hours). If the Contractor determines that the work required to complete the identified repairs, or correct discrepancies, is too great to be accomplished during the PM (i.e., greater than two (2) hours in duration or parts are not on hand), this work shall be accomplished as Corrective Maintenance (CM).

PM includes touch-up painting of FSEU, GSE and STE which has deteriorated or has been damaged; however, it is limited to minor surface painting (up to twenty-five percent (25%) of the surface) to correct damage or deterioration. PM does not include cosmetic painting.

PM include, but not limited to, services such as filter changes, light bulb replacements, drive belt replacements, and lubricant replacement, designed to remedy deficiencies revealed by unsatisfactory testing or inspection. Materials such as filters, light bulbs, chlorine gas, lubricants, and belts shall be provided as part of the PM. The Contractor shall have all materials, parts, and/or tools prior to initiation of work.

B. General Requirements

The Contractor shall establish and maintain a Preventive Maintenance Program, which shall include all labor, materials, and reporting necessary to accomplish and validate specified PM. The PM Program shall assure that FSEU, GSE and STE perform their respective intended

functions, outputs, and redundancies and are available during required operating periods. The Contractor’s *Operations and Maintenance Plan* (DRD GA01-6.0) shall address all recommended changes or modifications for PMs that result in an improved maintenance value. Additionally, the Plan shall define the Contractor’s proposed initial scheduling windows for completing PM at each of the specified maintenance levels and shall include a full one (1) year schedule of all FSEU, GSE and STE PM with frequencies and job plans. Proposed changes to or significant deviations from the approved *Operations and Maintenance Plan* (DRD GA01-6.0) or CMMS database, must offer an equivalent or improved program/service or other considerations, and must be submitted in writing to the NASA Center Operations Directorate, Operations and Maintenance Division for approval.

The Contractor shall, in the planning and executing PMs, utilize the RCM/CBM process to determine the optimum combination of Time Based PM and PTI tasks for each system, subsystem, or unit specified to attain the required levels of availability, output, redundancy, and intended function. The Contractor’s *Operations and Maintenance Plan* (DRD GA01-6.0) shall address all recommended changes or modifications for PMs that result in an improved maintenance value.

C. Deferrals

When PM cannot be accomplished within the initial scheduled window, due to circumstances beyond the control of the Contractor, the Contractor may obtain relief through a request for deferral. To be considered and approved, the PM must be attempted and/or access must have been requested within the first half of the initial scheduled window (i.e., if the initial window was twenty-eight (28) calendar days, the PM must be attempted and/or access requested within the first 14 calendar days). The deferral request must be submitted to the appropriate Center Operations Directorate, Operations and Maintenance Division personnel in a timely manner and must contain enough information to demonstrate that the requirements for deferral were met and to allow sufficient Government action or follow-up. (e.g., Date and time PM was attempted; date, time, and individual contacted for access request; date, time, and reason access was denied; new requested completion date, etc. Failure to include sufficient information for follow-up will result in the deferral being denied). In all cases, the maintenance actions or portions thereof which can be accomplished must be accomplished. Deferred PMs shall be coded in CMMS as either Approved or Denied.

NOTE: Lack of availability of parts, materials, and/or tools will not be considered as a justification for deferral of any PM.

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
6.2.1 Preventive Maintenance			
Preventive Maintenance Program	The Contractor shall provide the labor and materials to implement, maintain, and accomplish a reliability-centered preventive maintenance program for	See Attachments J-1, <i>Appendix A, Additional</i>	Ninety-five percent (95%) of all PM shall be completed on time.

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
	FSEU, GSE and STE.	<i>Workload Data, and J-9, Government Furnished Property</i>	

6.2.2 Corrective Maintenance (CM)

A. Scope

This section of the PWS identifies the Corrective Maintenance (CM) requirements for FSEU, GSE and STE as identified in Attachments J-1, Appendix A, *Additional Workload Data*, and J-9, *Government Furnished Property*. CM includes the scheduled or unscheduled work required to repair a piece of equipment, a system, or a real property facility to such a condition that it may be effectively utilized for its intended purpose through its life cycle. Repair includes, but not limited to, overhaul, reprocessing, or replacement of constituent parts or materials that have deteriorated by action of the elements or usage; have been damaged, regardless of the cause; or have not been corrected through maintenance. CM shall repair to a condition equivalent to the original intended or design capacity, efficiency or capability, and shall comply with NPR 8831, *Facilities Maintenance and Operations Management*. Parts and equipment used for repair shall meet Original Equipment Manufacturer (OEM) specifications or equivalent. The Contractor shall prepare scope definition, descriptions, engineering requirements, work control, tracking, and all other CM management services otherwise required under the terms of this section of the PWS.

Corrective maintenance tasks estimated less than \$50,000 total shall be core requirements. The \$50,000 shall be based on the initial estimate and is per individual task (does not include the addition of multiple tasks). The initial estimate includes all applicable cost to include but is not limited to material, subcontract, labor, and fee. In the event, the Contractor encounters unforeseen site conditions, the Contractor shall notify the Technical Monitor and the COR for disposition. All tasks initial estimates greater than or equal to \$50,000 will be authorized by an IDIQ task order.

B. Limitations, Restrictions and/or Special Conditions

1. Architectural

The Contractor shall accomplish architectural repairs in a manner to match the existing architecture. Repairs to floors, walls, ceilings, carpeting, etc. shall utilize materials with matching textures, finishes, colors, etc. When a wall covering is extensively damaged, the wall covering for the entire wall shall be replaced with a matching wall covering. All

replacement doors shall be installed utilizing the hardware from the damaged door unless the hardware is un-repairable.

Carpentry and masonry repair, and minor construction services shall be provided in accordance with the definitions, procedures, and standards specified in this subsection and in the *NASA Facilities Design Guide* (located in Attachment J-10, *Reference Library*), and in SPECSINTACT (the automated specification processing system used by NASA).

The Contractor shall consult with the appropriate NASA Operations and Maintenance Division personnel when replacement materials are not an exact match.

2. EMCS

The Contractor shall not engage in CM activities that modify the general configuration or the functionality of the EMCS without the prior approval of the appropriate NASA Operations and Maintenance Division personnel.

If OEM replacement components are not available, a justification shall be submitted to, and approved by, the appropriate NASA Operations and Maintenance Division personnel.

3. HPG Systems (SSC Only)

The Contractor shall repair leaks in accordance with SSC-47-451, Allowable Leak Standard. Additionally, the Contractor shall maintain a database in DDMS of all identified leaks by commodity that shall be accessible to the Government for periodic review. Information in the database shall include, but not be limited to:

- a. Location;
- b. Class;
- c. Condition; and
- d. Projected date of repairs (deferred repairs shall include a justification).

C. General Requirements

The Contractor shall identify CM actions through PM actions, operations, PTI, trouble calls, periodic inspections, casual observations, customer complaints, etc. The Contractor shall use, to its full advantage, the equipment and facilities provided by the Government. Although performance standards and guidelines have been established, the Contractor shall establish and implement a CM program that is innovative and resourceful.

Trouble Calls (TCs) are a subset of CM and are reactive maintenance. All CM and TC actions shall be prioritized in accordance with the work priorities defined below:

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1. **Emergency** – Any work necessary to correct failures, incidents or events that constitute a danger to personnel or property; a violation of health, safety, and/or environmental regulations; or a significant impact to the NASA or tenant mission.
2. **Urgent** - Work necessary to ensure continuous operations of a facility or system and/or to restore a facility or system to a healthful environment. The condition does not pose an immediate danger to personnel, property, or the NASA mission. However, if not responded to, the condition could result in an emergency situation.
3. **Priority** - Work that supports the mission on a priority basis or meets project deadlines. Contractor shall complete before starting new Priority 4 (Routine – as noted below) work.
4. **Routine** - Facilities maintenance work that can be scheduled routinely within the capability of the facilities maintenance organization. Contractor shall complete in order of receipt, subject to availability of resources, and consolidate by facility or zone or as directed to obtain efficiency of operation.
5. **Discretionary** –Work that is desired but not essential to protect, preserve, or restore facilities and equipment; typically, new work that is not tied to a specific mission milestone.
6. **Deferred** – Work that may be safely, operationally, and economically postponed. The work should be done, but cannot be scheduled because of higher priority work, funds shortage, work site access, or conditions outside the control of the maintenance organization.

Failures of any FSEU, GSE and STE whereby it loses its ability to perform its intended function, and/or deliver its intended output (i.e., availability loss), shall be properly assessed in order to determine the appropriate work priority. In determining the appropriate priority level, the Contractor shall consider the criticality of the FSEU, GSE and STE and how the failure of the FSEU, GSE and STE impacts safety, the environment, the mission, facility operations, and/or personnel use of the FSEU, GSE and STE (i.e., risks and consequences). When assigning priority, the Contractor should also take into consideration whether or not the FSEU, GSE and STE has built-in redundancy, allowing the intended function/output to be provided by another method. Additionally, failures that result in FSEU, GSE and STE losing such redundancy shall be prioritized accordingly. On occasion, emergency repairs may require the Contractor to protect or relocate equipment to preclude damage or danger to personnel, property, or mission. The Contractor shall properly assess, and have readily available, spare parts and components necessary to meet the requirements of this PWS.

Unless otherwise specified, CM and TC minimum response and repair times, along with customer notifications and updates shall be accomplished in accordance with Table 6.2-1, *Response and Repair Times for Corrective Maintenance and Trouble Calls*. When a CM repair cannot be accomplished within the allowed repair time, due to circumstances beyond the control of the Contractor, the Contractor may obtain relief through a request for deferral, in accordance with the process outlined in PWS Section 6.2.1. To be considered and approved, the CM must

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be attempted within the first 1/4 of the schedule window. The deferral must contain enough information to allow sufficient Government action/follow-up, consistent with requirements described in PWS Section 6.2.1. Failure to include sufficient information for follow-up will result in the deferral being denied.

The Contractor shall sustain direct contact and communication with all customers, keeping the customers advised of any problems or necessary changes in the work or schedule and sustaining this effort until work completion. A joint Contractor/customer walk-thru final inspection of the work is desirable for highly visible or critical areas.

In an effort to maximize availability and minimize the impact to tenants/customers, the Contractor shall make every effort to provide temporary services/repairs using portable, rental, or other equipment until permanent repairs can be accomplished. Completed repairs shall restore operation in accordance with the manufacturer’s design specifications.

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
6.2.2 Corrective Maintenance			
Accomplish Corrective Maintenance	Accomplish Corrective Maintenance for all equipment FSEU, GSE and STE.	See Attachments J-1, Appendix A, <i>Additional Workload Data</i> , and J-9, <i>Government Furnished Property</i>	Provide notifications, responses, and repairs as defined in Table 6.2-1.
Prioritize CM and TC	Prioritize CM and TC work orders.	See Attachments J-1, Appendix A, <i>Additional Workload Data</i> , and J-9, <i>Government Furnished Property</i>	Work orders shall be prioritized in accordance with the definitions provided.

Table 6.2-1
Response and Repair Times for Corrective Maintenance and Trouble Calls

Work Priority	Notification	Execution
1 (Emergency)	Provide notification per existing operating procedures and/or work instructions and as identified below within thirty (30) minutes of failure and provide regular updates until repairs are completed. a. To the appropriate NASA Center Operations Directorate, Operations and Maintenance Division personnel. b. To the applicable NASA/SSC Operations Manager.	a. Respond immediately. Contractor shall be at the job site and working within thirty (30) minutes of failure during core hours, and within two (2) hours outside of core hours. b. Work shall continue without interruption and shall arrest the emergency condition before departing the job site. Maximum repair time: twenty-four (24) hours.
2 (Urgent)	Provide notification per existing operating procedures and/or work instructions and as identified below within thirty (30) minutes of failure and provide regular updates until repairs are completed. a. To the appropriate NASA Center Operations Directorate, Operations and Maintenance Division personnel. b. To the applicable NASA/SSC Operations Manager.	a. Respond within twenty-four (24) hours. b. Maximum Repair Time: three (3) calendar days.
3 (Priority)	Provide notification to the applicable NASA/SSC Operations Manager within eight (8) hours, and provide daily updates until repairs are completed.	Maximum Repair Time: twenty-one (21) calendar days.
4 (Routine)	None required	Maximum Repair Time: ninety (90) calendar days.

6.2.3 Operations and Maintenance (O&M) Engineering

A. Scope

The Contractor shall provide adequate O&M Engineering expertise to ensure the proper knowledge and expertise necessary to perform proper operations and maintenance of all FSEU, GSE and STE described in PWS Section 6.0 (i.e., ‘System and Facility Descriptions’), or included in Attachments J-1, Appendix A, *Additional Workload Data*, and J-9, *Government Furnished Property*. O&M Engineering expertise is necessary to optimize FSEU, GSE and STE availability in a cost effective manner and to meet existing and/or changing mission needs of user(s)/tenant(s) through all phases of its life cycle. Contractor O&M Engineers shall act as subject matter (i.e., technical) experts (i.e., a ‘go-to’ resource), and shall manage FSEU, GSE, STE and/or area(s) with regard to all activities and associated documentation (CMMS, design limitations/specifications, OEM maintenance requirements, etc.).

B. Limitations, Restrictions, and/or Special Conditions

O&M Engineers should have an engineering degree from an accredited university with a minimum of three (3) years’ experience or a technical degree with a minimum of ten (10) years’ experience.

C. General Requirements

O&M Engineers shall possess, maintain current, and provide, the knowledge, skills, expertise, and abilities to:

1. Maintain authoritative knowledge of assigned FSEU, GSE and STE from end to end across all facilities, being familiar with the system’s physical layout, drawings, pertinent analyses and records, and fabrication.
2. Fully understand the operations and maintenance of the assigned system, recommending changes, and upgrades to the system as needed.
3. Understand the operational, safety and/or environmental impacts/considerations of their assigned system(s) and/or area(s), particularly when establishing and/or performing alterations and/or modifications.
4. Provide technical consultation to other engineering and design organizations, customers, and construction field personnel (i.e., in support of engineering studies, project designs, construction activities, etc.).
5. Provide technical guidance to shop personnel in the troubleshooting and/or repair of FSEU, GSE and STE problems or anomalies.
6. Perform root cause failure analyses.
7. Develop statements of work for shop maintenance activities.

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8. Develop specifications and packages for procurement of outside services in support of O&M activities.
9. Monitor system(s) and equipment performance, recommending actions to resolve operational deficiencies, improve performance, increase reliability and improve energy efficiency.
10. Ensure engineering practices and procedures are followed by all craft personnel in all work performance.
11. Maintain technical cognizance of proposed and implemented changes to all Federal, state, and local laws, regulations, policies, directives, and industry standards and notify the Government of any applicable changes.
12. Ensure all applicable codes, standards, and other requirements are met in the performance of work.
13. Properly communicate with NASA Engineers and Program/Project Managers, as well as with Tenants/Resident Agencies regarding operations and maintenance activities of their assigned systems.
14. Review and adjust CMMS equipment data, including criticality code assignments, to ensure they are accurate and reflect changes as Center missions change.
15. Periodically review equipment history, PTI data, and industry practices regarding their assigned areas, recommending changes/improvements to the current maintenance program so as to resolve operational deficiencies improve performance and increase reliability.

NOTE: Changes and/or improvements to the current maintenance program and CMMS database require the approval of the appropriate NASA Center Operations Directorate, Operations and Maintenance Division.

16. Perform periodic FCAs of assigned FSEU, GSE and STE to validate maintenance and repair requirements, and the condition of FSEU, GSE and STE at SSC and MAF as required for developing the AWP and the Five-Year Facilities Maintenance Plan in accordance with NPR 8831.2 and DRD GA01-6.0.

PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
6.2.3 O&M Engineering			
FCA	Perform a FCA of all FSEU, GSE and STE at SSC & MAF and input findings into the CMMS with the appropriate priority assignment.	1/3 rd	In accordance with DRD FA08-6.2, <i>Facility Condition Assessment Schedule</i>

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PWS TITLE	REQUIREMENTS	ESTIMATED WORKLOAD DATA	PERFORMANCE STANDARD
			<i>and Report.</i>
Root Cause Analysis	<p>Perform root-cause analysis on significant problems that result in disruption to critical operations, high-visibility anomalies, repeated failures on individual pieces of equipment or as requested by the Government. Analyses shall be performed utilizing techniques consistent with NPR 8621.1, <i>Procedural Requirements for Mishap and Close Call Reporting, Investigating and Recordkeeping</i>. Findings shall be provided within ninety (90) calendar days.</p>	Seven (7)	Complete report/finding for submittal to the Government within ninety (90) calendar days of incident.

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PERFORMANCE REQUIREMENT SUMMARY (PRS)

ITEM	WORK REQUIREMENT	WEIGHT	STANDARD OF PERFORMANCE	M.A.D.*	SURVEILLANCE METHODS
CONTRACT MANAGEMENT (PWS 1.0)					
1.1	CONTRACT MANAGEMENT	48%		3.10	RR, PI, UPI, VCC**
	(a) Ensure contract compliance with Public Laws, Executive Orders, NPD, NPR, PWS, approved plans (e.g., subcontracting), FAR, NFS, Center policy directives. Center procedural requirements, work instructions, permits, contract clauses, and approved plans. Ensure that all requirements in PWS are completed within cost, on schedule, and a high quality manner and safe environment.	90%	(a) No violations or non-compliances of Public Laws, Executive Orders, NPD, NPR, PWS, approved plans (e.g., subcontracting), FAR, NFS, Center policy directives, Center procedural requirements, work instructions, permits, contract clauses; no OSHA citations or EPA violations; no instances of non-compliance with contract requirements, terms and conditions, and approved plans and/or standards under 1.0.	1	
	(b) All IT systems shall adhere to the requirements identified in PWS 1.1.3.		(b) No instance of IT systems not in compliance with SSC, MSFC, MAF IT Requirements as identified in PWS 1.1.3.		
	(c) Implement an approved emergency strategy during emergencies.		(c) No instance of Contractor not executing its approved emergency strategy.		
	(d) Provide necessary personnel and resources, except those Government-furnished, to accomplish work and comply with all other terms and conditions of the contract.		(d) No instance of personnel not satisfactory accomplishing requirements due to training, certifications, qualifications, or other issues; no instance of non-compliance with PWS requirements and/or contract terms and conditions.		
	(e) Satisfy Reporting Requirements by: (1) maintaining documentation with respect to all financial operations and (2) developing and maintaining a comprehensive record and file management program. Provide all documentation (DRs, reports, etc...) in accordance with requirements.	10%	(e) No instance of late and/or inaccurate reports. This does not include MF01, MF02, MF03, MF04, and MF05.	10% of Lot Size	
1.2	TECHNICAL MANAGEMENT	2%		2.00	
	(a) Develop plans and formulations in accordance with requirements.	100%	(a) Plans and formulations are 100% accurate and plans are submitted per DR and formulations by requested due date.	2	
1.3	BUSINESS MANAGEMENT	46%		7.10	
	(a) Responsiveness to multiple customers; maintain flexibility in management operating systems and controls for changing service requirements and prioritizing tasks to accommodate competing demands.	42%	(a) No disrupted services to any customers; work management program accessible to customers and identifies work by PWS and work authorization; no instances of costs exceeding approved amount without approval; standards under 1.2.5.	4 (a) - (g) Combined	
	(b) Develop, implement and maintain a financial management process which complies with all requirements specified in Section 1.2.4 of this PWS.		(b) No instances of system or process non-compliance.		
	(c) Develop and update a customer guide for SACOM services to be used by customers.		(c) Guide is easily accessible and updated annually.		
	(d) Ensure the correct code(s) is/are utilized per work order.		(d) No instance of code structure not correct.		
	(e) Schedule and arrange work that causes the least interference with the normal occurrence of Government business and missions.		(e) No interferences for normal scheduled work.		
	(f) Provide notifications of unscheduled site outages, failures, and/or anomalies.		(f) Provide immediate notification per PWS section 1.2.5.		
	(g) Maintain a current, updated contact list(s) necessary to ensure proper notifications of outages, failures, and/or anomalies.		(g) Eight hours to execute update once notified.		
	(h) Report plan, cost and workforce data per deliverable request MF01, MF02, MF03, MF04, MF05 and MF06	25%	(h) No instance of deliverables not correct. No instance of deliverable not submitted according to the submittal information on the deliverable.	1	
	(i) Develop cost estimates in accordance with request per PWS 1.3.2	8%	(i) Estimates are accurate to within +/- 5% of awarded work.	2	
	(j) Acquire materials, supplies, and services	25%	(j) Order is placed within number of days after receipt: LEVEL I: 3 workdays LEVEL II: 5 workdays LEVEL III: 10 workdays LEVEL IV: 14 workdays LEVEL V: 30 workdays	10% of Lot Size	
1.4	BUSINESS DEVELOPMENT	4%		2	
	a) Provide new viable prospective tenants to NASA Site Development Lead for potential occupancy.	10%	(a1) 10 new prospective tenants per year submitted to NASA. (YEARLY)***	1	
		90%	(a2) Total (new, does not include current extensions) potential revenue due to occupancy equal to or greater than \$1M/year. (YEARLY)****	1	
TOTAL	PWS SECTION WEIGHT	20%			

* Denotes # of Observed Deficiencies (OD) (quarterly unless identified as yearly) fee is reduced for each OD. If ODs exceed the MAD, fee continues to be reduced from the overall fee pool.

** See RFP Section E.4, Government Contract Quality Assurance Functions.

*** New prospective tenants shall be viable in the context of the PWS section 1.4

**** Pending the definition of a viable contractor, if the Contractor forwards a viable prospective tenant and the Government does not approve the prospective tenant the Contractor would received credit for the prospective tenant.

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PERFORMANCE REQUIREMENT SUMMARY (PRS)

ITEM	WORK REQUIREMENT	WEIGHT	STANDARD OF PERFORMANCE	M.A.D.*	SURVEILLANCE METHODS
LOGISTICS & PRODUCT DATA MANAGEMENT (PWS 2.0)					
2.1	LOGISTICS	70%		4	RR, PI, UPI, VCC**
	(a) Provide and maintain accurate packaging, shipping, receiving and inspection function.	35%	(a) Contractor shall comply with NASA standard for receipt processing time of 2 days.	1	
	(b) Operate and manage all vehicles including but not limited to boats, buses, cars, cranes, forklifts, hoist, trams, and vans.	30%	(b) Meet customer requirements with clean and correct size vehicle operated by courteous, knowledgeable personnel. Customer complaints shall not exceed (2) per month.	1	
	(c) Provide and maintain timely and efficient moving and hauling services.	25%	(c) Completed 100% of moving and hauling services in accordance with schedule.	1	
	(d) Provide and maintain accurate and timely mail services.	10%	(d) Delivery incoming internal mail no later than the next normal duty day. Wrong receipt or non-delivery of mail shall not exceed (2) customer complaints per month.	1	
2.2	PROPERTY MANAGEMENT	30%		7	
	(a) Maintain a timely and accurate material management system for tracking, processing, management and issue of spares, parts, supplies, materials and shipping containers.	40%	(a) Complies with NASA standard fill rate of 90%.	2	
	(b) Maintain an accurate inventory management system.	25%	(b) Contractor shall ensure integrity of material's inventory in compliance with NASA Series 4100. No more than 5% of inventory adjustments on operation errors.	2	
	(c) Contractor shall safeguard from loss and/or destruction the IAGP property assigned to the contractor.	15%	(c) Contractor shall not lose and/or damage government property. Loss rate shall be no more than 5%.	2	
	(d) Maintain accurate and timely equipment management system to include redistribution, utilization and disposal.	20%	(d) Ensure 100% accuracy of data entry into the Property Management System	1	
TOTAL	PWS SECTION WEIGHT	10%			

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 ** See RFP Section E.4, Government Contract Quality Assurance Functions.

NNS14478585R, PWS

PERFORMANCE REQUIREMENT SUMMARY (PRS)

ITEM	WORK REQUIREMENT	WEIGHT	STANDARD OF PERFORMANCE	M.A.D.*	SURVEILLANCE METHODS
SAFETY, HEALTH & ENVIRONMENTAL (PWS 3.0)					
3.0/3.1	SAFETY & RISK MANAGEMENT	35%		2	RR, PI, UPL, VCC**
(a) The Contractor shall meet all SHE requirements outlined in PWS, Section 3.0		50%	(a) No instance of SHE program not being maintained in accordance with documents listed in PWS Section 3.0	1	
(b) The Contractor shall meet all safety and risk management requirements outlined in PWS, Section 3.1.		50%	(b1) No instance of Safety and Risk Management requirements not be met in accordance with documents listed in PWS Section 3.1 (b2) At SSC, no instance of not having VPP certification after the required due date.	1 (b1) - (b2) Combined	
3.2	QUALITY ASSURANCE & RELIABILITY	20%		1	
(a) The Contractor shall meet all quality assurance and reliability requirements outlined in PWS Section 3.2.		100%	(a) No instance of Quality Management System not in compliance with American National Standards Institute (ANSI) American Society for Quality (ASQ) ANSI/ISO/ASQ Q9001:2000, Quality Management Systems Requirements and AS 9100 SAE9100, Quality Management Systems – Aerospace – Requirements.	1	
3.3	ENVIRONMENTAL HEALTH (INDUSTRIAL HYGIENE AND HEALTH PHYSICS)	10%		2	
(a) The Contractor shall meet all Industrial Hygiene requirements as outlined in PWS, Sections 3.3.1.		80%	(a) No instance of Industrial Hygiene Program not being maintained in accordance with documents listed in PWS, Section 3.0 and 3.3.1.	1	
(b) The Contractor shall meet all Health Physics requirements as outlined in PWS, Sections 3.3.2.		20%	(b) No instance of Health Physics Program not being maintained in accordance with documents listed in PWS, Section 3.0 and 3.3.2.	1	
3.4	ENVIRONMENTAL SERVICE	20%		7	
(a) Timely submittal of all documentation to ensure compliance with all federal, state and local requirements. All of which is associated with the implementation of effective programs that promote the environmental compliance.		20%	(a) Compliance with regulatory requirements as outlined in the DRs. All document/data must be complete, accurate, maintained and readily accessible.	3	
(b) Environmental Compliance with all local, state, and federal regulations/laws.		50%	(b) No Fines, Penalties, Notice of Violations (NOVs) or Notice of Deficiencies (NODs).	1	
(c) Hazardous waste accumulation.		20%	(c) No hazardous waste storage exceeding the ninety day accumulation time or (1) year in the permitted Treatment, Storage, and Disposal Facility.	1	
(d) Environmental spill/incident reporting.		10%	(d) Report spills or incidents with a potential reportable quantity within thirty minutes of awareness to the Environmental Officer.	2	
3.5/3.6/3.7	PRESSURE VESSELS/ SYSTEMS / NDE / FOD	15%		7	
(a) The Contractor shall meet all Pressure Vessels & Systems requirements as outlined in PWS, Section 3.5.		60%	(a) No instance of PV/S Program not being maintained in accordance with documents listed in PWS, Section 3.5.	2	
(b) The Contractor shall perform NDE services to support Government activities.		30%	(b) No instance of NDE services not being performed in accordance with PWS, Section 3.6.	4	
(c) The Contractor shall meet all FOD requirements as outlined in 3.7.		10%	(c) No instance of FOD Program not being maintained in accordance with documents listed in PWS, Section 3.7.	1	
TOTAL	PWS SECTION WEIGHT	15%			

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PERFORMANCE REQUIREMENT SUMMARY (PRS)

ITEM	WORK REQUIREMENT	WEIGHT	STANDARD OF PERFORMANCE	M.A.D.*	SURVEILLANCE METHODS
ENGINEERING & MANUFACTURING SUPPORT (PWS 4.0)					
4.1	DESIGN ENGINEERING	15%		5	RR,PI,UPL,VCC**
	(a) Perform preliminary concepts, trade studies, planning, drafting and drawing packages. Execute design engineering packages including all design phases and design activities. Prepare and document Engineering Analysis and modeling assessments as requested.	50%	(a) All deliverable shall be technically accurate.	1	
	(b) Perform drawing in accordance PWS 4.0	30%	(b) Construction change requests due to design error as compared to total original construction cost estimate shall be less than five percent (5%) cost.	2	
	(c) Deliver all requirements per PWS 4.0 in accordance with the due dates.	20%	(c) All deliverables shall be submitted on time.	2	
4.2/4.3	PRODUCT DATA AND LIFECYCLE MANAGEMENT (PDLM)/TECHNOLOGY DEVELOPMENT	15%		3	
	(a) Overall documentation Product Life Cycle timeliness and accuracy. Maintain updated, centralized, and consolidated technical files.	90%	(a) Timely and accurate per customer request and project specific schedules.	1	
	(b) Perform Technology Development in accordance with PWS 4.3.	10%	(b) No loss of laboratories availability due to Contractor's neglect or poor planning. Membership in national technical committee. Proposals are accurate and technically acceptable.	2	
4.4	CONSTRUCTION SUPPORT	20%		5	
	(a) Perform Construction Pre-proposal activities, proposal development activities, and execution phase support.	50%	(a) Daily and weekly project support to the NASA customer for construction projects per site standards and customer request. Provide timely and accurate performance on all elements of Construction packages and planning for the pre-proposal development, proposal development, package, and execution phase including field engineering support.	4	
	(b) Perform Construction close-out activities.	50%	(b) Perform all coordination and data close-out activities for assigned Construction project per site standards for construction management. Completion of all data updates on all data files, drawings, real-property list, and other vendor data shall be within 30 days of the actual construction completion.	1	
4.5/4.6	MANUFACTURING & TESTING SUPPORT	50%		1	
	(a) Hardware Manufacturing Support: Support NASA and customers with manufacturing logistics, manufacturing scheduling, engineering support. Assist NASA in providing all integration with the tenants and customers. ----- (b) Testing Support: Support NASA and customers with propulsion, rocketry, sub-element and sub-scale bench testing activities. This shall include all phases of a "TEST" effort including planning, formulation, design, fabrication / build, activation and validation, close-out.	100%	(a/b) No instance of receiving a valid customer compliant regarding the schedule, work quality, safety, and/or technical support received from the contractor.	1	
TOTAL	PWS SECTION WEIGHT				
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PERFORMANCE REQUIREMENT SUMMARY (PRS)

ITEM	WORK REQUIREMENT	WEIGHT	STANDARD OF PERFORMANCE	M.A.D.*	SURVEILLANCE METHODS
FACILITY OPERATIONS AND MAINTENANCE (PWS 6.0)					
6.0	FACILITY OPERATIONS & MAINTENANCE	100%		18.15	RR,PI,UPI,VCC**
(a) Optimize maintenance resources by reducing the amount of recurring maintenance activities.	10%	(a) Reduction per year against the approved first year Operations and Maintenance Plan as the baseline for the reduction calculations. (YEARLY)	1		
(b) Protect the availability, reliability, and redundancy of equipment and/or systems through their life cycle	20%	(b1) "Availability Loss of FSEU that resulted in an incident or event which constituted a danger to personnel or property; a violation of health, safety, and/or environmental regulations; or a significant impact to the NASA or tenant mission. Or Availability Loss of FSEU that resulted in a significant impact to the NASA or tenant mission. Or Availability Loss of FSEU that resulted in a financial burden to the Government > or = \$25,000" (YEARLY)	1		
		(b2) Availability Loss of FSEU that resulted in a significant impact to the operations of a facility or resulted in a financial burden to the Government > or = \$10,000 and < \$25,000 (YEARLY)	2		
		(b3) Availability Loss of FSEU that resulted in an impact to the operations of a facility or resulted in a financial burden to the Government > or = \$5,000 and < \$10,000 (YEARLY)	3		
		(b4) Availability Loss of FSEU that resulted in an impact to personnel use of a facility or resulted in a financial burden to the Government < \$5,000 (YEARLY)	4		
(c) Provide Proper System Operations	10%	(c) Systems are operating to specified output ranges, parameters, capacities, and efficiency. Timely updates of operating logs and accurate data.	2		
(d) Accomplish PMs on Schedule	20%	(d) Use available resources to accomplish PM requirements in accordance with the approved schedule defined in the Operations and Maintenance Plan (DRD GA01-6.0).	5% of Lot Size		
(e) Accomplish CMs on Schedule	20%	(e) CM and TC repair times are accomplished in accordance with Table 6.2-1.	10% of Lot Size		
(f) Response and Notifications for CMs	5%	(f) CM and TC response times and notifications are accomplished in accordance with Table 6.2-1.	2		
(g) Provide Quality Work	15%	(g) No recurring work as a result of ineffective repairs; no evidence of completed work not properly completed or performed; no validated customer complaints for poor workmanship or nonconformance with PWS requirements.	3		
TOTAL	PWS SECTION WEIGHT	25%			

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