

Neutral Buoyancy Laboratory (NBL) Operations Contract (NOC)

Statement of Work (SOW)

Section C

SECTION C

DESCRIPTION/SPECIFICATIONS/STATEMENT OF WORK

Table of Contents

Foreword: NBL Operations Contract Overview

Description of NBL

Activities performed at the NBL

1.0 Contract Management and Administration

- 1.1 Financial and Contract Performance
- 1.2 Formal Contract Communications
- 1.3 Subcontracts
- 1.4 Organizational Conflict of Interest
- 1.5 Technical Metrics
- 1.6 Logistics
- 1.7 Collaboration
- 1.8 Security
 - 1.8.1 Emergency Preparedness
 - 1.8.2 Export Control
- 1.9 Information Technology
 - 1.9.1 Information Technology Plan
 - 1.9.2 Information Technology Services
 - 1.9.3 Information Technology Security
- 1.10 Documentation Management
- 1.11 Safety and Health Management
- 1.12 Environmental and Energy Conservation
- 1.13 Quality Assurance
- 1.14 Risk Management
- 1.15 Certification of Flight Readiness
- 1.16 Configuration Management
 - 1.16.1 Technical Change Management
 - 1.16.2 Technical Change Process
 - 1.16.3 Technical Problem Process
 - 1.16.4 Contract Change Management
- 1.17 Property
 - 1.17.1 Government Property
 - 1.17.2 Contractor-Owned Capital Property
- 1.18 Equipment Replacement/Obsolescence
- 1.19 Training Coordination and Records

2.0 Sustaining, Operations, and Upgrades

- 2.1 Operations
 - 2.1.1 Scheduling
 - 2.1.2 Operations Control
 - 2.1.3 Event Support
 - 2.1.4 Real-time Mission Support

- 2.1.5 Tours, Media and Special Event Support
- 2.2 Sustaining Engineering and Maintenance
 - 2.2.1 Facility and Installation Maintenance
- 2.3 Core Project(s) Upgrades and Modifications
- 2.4 External Customers
- 2.5 Support Services
 - 2.5.1 Safety
 - 2.5.1.1 Pre-event Safety
 - 2.5.1.2 Health and Safety
 - 2.5.2 Facility Manager
 - 2.5.3 Training
- 3.0 Indefinite Delivery Indefinite Quantity (IDIQ) Task Ordering**

Appendices

- Appendix A: Acronyms
- Appendix B: Definitions
- Appendix C: Performance Standards

Foreword: Neutral Buoyancy Laboratory Operations Contract Overview

The foreword serves as an information-only introduction to the Statement of Work (SOW).

The Neutral Buoyancy Laboratory (NBL) is a key Agency asset that supports human spaceflight training and operations. The facility supports the International Space Station (ISS), Orion, and other future space programs. The NBL is operated by JSC's Flight Operations Directorate (FOD).

The NBL Operations Contract (NOC) specifies technical, managerial, and administrative work needed to ensure the availability, integrity, and reliability of the facility supporting NASA human spaceflight programs. For this contract, "facility" is defined as the systems and subsystems of integrated hardware and software used in the preparation for and performance of mission operations. The term "facility" does not refer to "brick and mortar" buildings or building functions. A memorandum of understanding (MOU) between FOD and the Center Operations Directorate (JSC-27049, MOU and Standard Interface Plan between COD and MOD for Support of MCC Operations and NSOC Operations) is contained in the technical library. This MOU outlines the responsibilities of the COD contractor and the eventual NOC contractor with respect to the building proper.

The objectives of this contract are to:

- Acquire support (labor and expertise) to ensure the continuing safe operation of the facility and support all required events.
- Increase opportunities for synergy across all functions, processes and systems. NASA will collaborate with the Contractor on developing technical and procedural innovations that improve safety, enhance quality, ensure user satisfaction, and reduce cost.
- Develop external customer utilization of current and future excess capacity in the facility.
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Description of NBL

- a. The NBL is a part of the Sonny Carter Training Facility (SCTF), located approximately five miles from the Johnson Space Center (JSC). The NBL (Buildings 920N, 920L and 925) provides a unique environment to simulate micro-gravity using underwater neutral buoyancy techniques. It provides capabilities for astronaut training, real-time mission trouble-shooting, extravehicular activity (EVA) procedure development and verification, flight hardware development and verification, water survival training, and support of external users. The NBL has high visibility to agency management and the general public due to its importance to NASA's mission and the highly hazardous operations performed there. The NBL also includes a Logistics & Mockup Facility (LMF) that provides fabrication, repair, and upgrade of mockups for the NBL. In addition, the NBL uses Building 925 as a mockup storage building. Throughout this SOW, the reference to the NBL includes buildings 920N, 920L and 925. Additionally, the term "system" refers not only to the hardware used to provide a product or service (e.g. the Breathing Gas System manufactures and delivers Nitrox for use at the NBL) but also includes the tooling, spares, and software used to operate, repair, and maintain it.

- b. The NBL contains a 202-foot long, 102-foot wide, and 40-foot deep-water tank. The tank has standard filtering, chlorinating, and pumping subsystems as a part of its water treatment system. Additional NBL systems include an environmental control system, a breathing gas system, a closed circuit television system, a communications system, multiple crane systems, a robotic manipulator system, scuba, surface-supplied diving systems, and an underwater diver communication system. The NOC Contractor is responsible for providing all consumables for operating and maintaining these systems. The NBL also contains a hyperbaric treatment chamber and hypobaric chamber that are owned by the Human Health and Performance Directorate.
- c. The building contains administrative space for the NOC Contractor's management, technical, and dive support functions. Space for NBL civil service personnel and other organizations' contractors such as EVA suit support functions, EVA tool support functions, test control room support, utility support, test safety support, quality assurance support, and medical support are also provided for in the facility. The facility also contains a clean area for servicing hardware that must maintain a cleanliness level for oxygen operation. This clean area is available for use by the Contractor.
- d. The facility has in its inventory over 100 separate mockups, representing various past and future program flight hardware. The NOC Contractor is responsible for maintaining the configuration of the mockups as well as conducting their preventive and repair maintenance. The mockups used in the NBL are full-scale (1:1) models of spacecraft or spacecraft components. Depending on their purpose, mockups can vary from "low fidelity", which models the basic volume and shape of the spacecraft/component, to "high fidelity" which very closely matches the "look and feel" of the spacecraft/component. Mockups can be built to last for short-term purposes or for many years. NBL mockups are usually made from stainless steel, composites and plastics.
- e. The NBL supports customers from organizations outside of FOD. These include other JSC Directorates (e.g., Engineering, Human Health and Performance, Public Affairs), other NASA centers, other government agencies (e.g., U.S. Coast Guard) and commercial companies. Examples of this type of support include use of the NBL for submerged operations or water survival training, and the use of the facility for media and educational events.

Activities Performed at the NBL

NOC personnel provide facility operational support, including scheduling, configuration, set-up, anomaly resolution, and tear-down for each activity listed below. Sections 2 and 3 describes the detailed NOC requirements in contrast, the actual activity (e.g., training) may be performed by non-NOC personnel. For example, for a suited NBL training event, NOC personnel will: configure the mockups prior to the event, provide the required safety and utility divers and associated support personnel, provide system operators, and resolve any real-time anomalies. The actual event will be performed by suited subjects (e.g., Astronauts) and Test Conductors

(NASA or non-NOC contractors). Additionally, the event will be supported by non-NOC personnel from Safety, Quality, Medical and EVA tools and suits.

- a. Astronaut and Cosmonaut Training – The NBL is used to train personnel to conduct EVA and intra-vehicular activities (IVA), either as crewmembers or members of the ground team.
The NBL supports training for planned EVAs, contingency EVAs, and their associated robotic operations (e.g., remote manipulation of crewmembers and hardware). Astronauts and Cosmonauts receive EVA training operations using underwater mockups while wearing pressurized Extravehicular Mobility Units (EMUs) or scuba. Suited water events are generally four to six hours in length. Other EVA-related training conducted at the NBL is performed “unsuited” and uses 1-G mockups located on the pool deck or in the high bay.
- b. Real-time mission support – The NBL is used to provide real-time support within hours of a request to support troubleshooting of on-orbit anomalies (e.g., equipment malfunction requiring EVA).
- c. Mission development – The NBL is used to develop approaches and products for future mission activities. For example, a scuba evaluation of EVA hardware or preliminary procedures might be performed. Work performed under this category may require work to be performed at locations other than the NBL (i.e. underway recovery training for Orion).
- d. Timeline/Procedure development and verification – The NBL is used to develop timelines and procedures to be used by crewmembers and ground personnel to accomplish on-orbit tasks and objectives.
Developers of flight hardware, training organizations, flight controllers and astronauts utilize mockups and capabilities in the facility to test out and verify the flight procedures necessary to accomplish tasks on orbit.
- e. Vehicle and flight systems development – The NBL is used to support development of new or modified equipment for existing flight vehicles and systems.
- f. Developmental engineering analysis – The NBL provides tools, facilities, and personnel for conducting engineering tests. The NBL is used to provide a neutrally buoyant and 1-G environment for evaluating EVA and IVA capabilities.
- g. Mockup design and fabrication – The NBL utilizes mockups and trainers to accomplish their functions. These mockups are built/modified “in-house” by NOC or sourced from external suppliers.
- h. Mockup and System Maintenance – The LMF and the NBL’s Highbays are the primary locations where mockup and systems are maintained or modified. The LMF is an extensive machine shop that contains metal fabrication machines, wood shop tools and supporting equipment for fabrication, assembly and repair of mockups.
- i. Laydown yard – Building 925 and the exterior areas around the NBL are used as mockup storage areas.
- j. External Customers – The NBL is used to support external customers’ needs, as appropriate, within available capacity and priorities.
- k. Public Affairs – The NBL is used to facilitate communication of the NASA mission to the public. This public affairs function includes tours, media events, education events, and public outreach.

1.0 Contract Management and Administration

All scope within Sections 1 and 2 of this SOW shall be core work. Additional services, if required, may be ordered in accordance with Section 3.0, Indefinite Delivery Indefinite Quantity (IDIQ) Task Ordering.

- a. The Contractor shall provide leadership, management oversight, direction and problem resolution for all functions performed on the contract. The Contractor shall:
 - i. Plan, organize, direct and control all contractor activities required to accomplish the requirements of this SOW.
 - ii. Provide work authorization, direction, and coordination to Contractor personnel.
 - iii. Manage contract guidelines, budgets, schedules.
 - iv. Manage financial and contract performance.
 - v. Prepare/update the program plan, establish program performance metrics, and review/report program performance.
 - vi. Perform contract administration and subcontract management.
 - vii. Provide functional management and administration of all Contractor and NASA policies, standards and procedures.
- b. The Contractor shall provide a management interface resident in the NBL who is authorized to direct day-to-day work, coordinate with NASA on contractual matters, respond to questions and action items from NASA and resolve issues. The interface or designee shall be within verbal contact by NASA within two hours of notification 24 hours/day, 365 days/year.
- c. The Contractor shall:
 - i. Perform continuous improvement in accordance with the Continuous Improvement and Innovation Plan, DRD-NOC-03.
 - ii. Perform project planning, implementation, measurement of results and reporting, for NASA-approved process improvements.
- d. The Contractor shall organize and institute integrated processes and tools for managing the products and services specified in this SOW, in accordance with the Management Plan, Contract Work Breakdown Structure, and Dictionary, DRD-NOC-01.
- e. The Contractor shall accept/utilize existing NASA hardware, software and documentation unless otherwise agreed with NASA.
- f. The Contractor shall capture the safety, technical, management, financial, and administrative lessons-learned at the NBL. The Contractor shall:
 - i. Document the problem, the resolution, the resulting lesson(s)-learned and any related recommendations or forward-work for each entry.
 - ii. Consolidate all lessons-learned in a searchable electronic format that is accessible to NASA. Incorporate all existing lessons-learned data into this tool.
 - iii. Review and report all documented lessons-learned at least once each year to assess the status of previous recommendations and forward work, identify

patterns, and look for correlations in accordance with Technical Metrics Plan and Reports, DRD-NOC-22.

- g. The Contractor shall track all open actions and document the process via a Work Instruction (WI).
- h. The Contractor shall provide or utilize a software product that is approved by NASA and will be utilized as the Action Tracking System (ATS).
 - i. The ATS shall be used to document and track open actions from audits, investigations, hardware & software reviews, Safety Reviews (SRs), Test Readiness Reviews (TRRs), inspections, actions from management meetings (e.g., 7:30 morning tag up) and other deliverables (e.g., Annual document reviews) requested by NASA.
 - ii. The Contractor shall prioritize and close actions per the priorities set by NASA and NOC management.
 - iii. The WI shall describe the processes for adding, deleting, updating and closing actions in the ATS.
 - iv. The Contractor shall ensure that the rationale for action item closure is provided and that the NASA or contractor representative with the authority to close the action has reviewed and has approved the rationale for closure. If there is an additional action, such as ensuring the TRR form is signed stating all actions closed, then the Contractor shall not close the action until that activity has been completed.
- i. The Contractor shall capture all records and data within this SOW in accordance with NBL Database Management Plan, DRD-NOC-26, and the Records Management Plan, DRD-NOC-20.
- j. The Contractor shall provide a monthly summary of contractor performance in accordance with Daily/ Summary Reports, DRD-NOC-24.

1.1 Financial and Contract Performance

- a. The Contractor shall provide and maintain financial and contract performance management data for the planning, tracking, accumulation and monitoring of contract cost and contract performance to meet the budgeting, cost reporting, billing, and disclosure requirements of the contract, in accordance with NF533 M Cost Reporting, DRD-NOC-28.
- b. The Contractor shall support a monthly Technical, Cost, and Schedule Review (TCSR) in accordance with the Management Review Report, DRD-NOC-25.
- c. The Contractor shall report the following financial and management data. These reports shall comply with the most current version of NPR 9501.2, NASA Contractor Financial Management Reporting for procedures and guidelines.
 - i. Management Plan, Contract Work Breakdown Structure, and SOW Dictionary, DRD-NOC-01
 - ii. Total Compensation Plan, DRD-NOC-29

- iii. Workforce Reports, DRD-NOC-27
 - iv. NF533 Cost Reporting, DRD-NOC-28
 - v. Other business management and administrative reports, such as financial planning, historical information, technical support information, and budget impacts of proposed changes, as required in any pertinent DRD.
- d. The Contractor shall provide a Fiscal Year (FY) Operating Plan and input into NASA's Planning, Programming, Budgeting, and Execution (PPBE) as required in DRD-NOC-06.
 - e. The Contractor shall provide financial reporting of contractor held property as required in DRD-NOC-33, Financial Reporting Contractor Held Property.

1.2 Formal Contract Communications

Formal communications between NASA and the Contractor shall be via the Government provided electronic system. The system will be used for general communications, requests for information, submission of documentation, and as a cover for all technical direction.

1.3 Subcontracts

The Contractor shall institute a plan for small business subcontracting, and provide associated reports, in accordance with the Small Business Subcontracting Plan and Reports, DRD-NOC-07. The Contractor shall perform subcontract administration in accordance with the Management Plan, Contract Work Breakdown Structure, and Dictionary, DRD-NOC-01.

1.4 Organizational Conflict of Interest

The Contractor shall institute processes to avoid, neutralize, and mitigate organizational conflicts of interest in accordance with the Contractor Organizational Conflicts of Interest (OCI) Mitigation Plan, DRD-NOC-19.

1.5 Technical Metrics

The Contractor shall develop, implement, and maintain a set of technical performance metrics aligned with NOC functional areas in accordance with Technical Metrics Plan and Reports, DRD-NOC-22.

The Contractor shall utilize the technical metrics to formulate technical and managerial strategies and tactics for optimizing work and improving performance.

The Contractor's systems for documenting and managing technical metrics and tracking associated measurement values shall support electronic exchange of information with NASA as specified in the applicable Data Requirements Descriptions (DRDs).

1.6 Logistics

The Contractor shall provide logistical support for all the activities specified in this SOW. The Contractor shall:

- a. Plan and acquire raw materials, consumables and equipment to be used in the facility
- b. Stock and retrieve spare parts and equipment (reference Attachment J-12, On-site Installation Accountable Property).

- c. Maintain and report an up-to-date inventory of all equipment and supplies for the facility, the current location and (where applicable) the operating condition.
- d. Control the check-in and check-out of equipment and supplies. The facility currently uses software which is available for use to control equipment.
- e. Coordinate shipping, receiving and transportation of equipment and materials. Inspect and receive all Contractor Acquired Property (CAP) and Contractor Furnished Property (CFP). Provide packing, packaging, and handling of all outgoing property. Generate the shipping and property control documents required to support these functions.
- f. Track usage of all assigned Government vehicles.
- g. Provide the detection, evaluation, and handling of nonconforming items.

1.7 Collaboration

The Contractor shall:

- a. Cooperate with other organizations from outside the contract that are tasked to provide equipment or support to the facilities, providing support as requested by NASA. (i.e. suits and tools, Medical, etc.)
- b. Establish Associate Contractor Agreements (ACAs) as required by NASA (reference Clause H.7 Associate Contractor Agreement for NOC Activities). The ACAs shall specifically address all Contractor roles, responsibilities, expectations, and a remedy process for problem resolution. Additionally, the Contractor shall enter into ACAs with other contractors who depend on NOC products to complete timely and quality work for NASA. All ACAs shall be submitted to the NOC Contracting Officer's Representative (COR).

1.8 Security

The Contractor shall comply with all applicable Federal, Agency, and Center security requirements.

The Contractor shall provide, administrative, information, and IT security.

The Contractor shall protect sensitive information as well as Privacy Act information, proprietary data, International Traffic in Arms Regulation (ITAR) data and technology embargoed from foreign dissemination, and Intellectual Property (IP) data that is transmitted, stored, or processed in the facility and systems in accordance with applicable law and NASA policy.

1.8.1 Emergency Preparedness

The Emergency Action Plan (EAP) is owned and maintained by the Center Operations Directorate. The Contractor shall assist the Center Operations Directorate in maintaining and executing the EAP. To accomplish this, The Contractor shall institute and implement processes and procedures, for the NBL, to ensure emergency preparedness and disaster recovery. On an annual basis, the Contractor shall:

- a. Identify NBL Safety and Health personnel, who shall coordinate all emergency preparedness within the facility.
- b. Review and update, if necessary, the EAP for the facility and the emergency response plan (e.g., Hurricane checklist).

- c. Conduct employee training to test process and procedures in preparation of an event (e.g., mock hurricane).
- d. Identify the specific equipment/facilities that require backup.
- e. Determine acceptable backup strategies for items identified per item 2.8.1(d).
- f. Provide annual input into the JSC Emergency Preparedness Plan (EPP).
- g. Identify and implement methods to alert employees of hazards and emergencies, account for all employees to verify their status, and provide continuing information during an extended emergency.
- h. Identify methods to ensure business continuity and enable a more rapid and effective response to and recovery from a national emergency.

1.8.2 Export Control

The Contractor shall adhere to the most current version of export control requirements in NPD 2190.1, NASA Export Control Program and J29W-01, JSC Export Compliance Work Instruction.

1.9 Information Technology

1.9.1 Information Technology Plan

The Contractor shall institute processes for Information Technology (IT) planning and management, as defined in the most current version of NPD 2800.1, Managing Information Technology for each facility.

The Contractor shall comply with Federal and NASA IT planning and reporting regulations and requirements in accordance with Information Technology (IT) Plan and Reports, DRD-NOC-21.

1.9.2 Information Technology Services

The Contractor shall perform all activities associated with the development and operation of the IT infrastructure across the contract, unless otherwise provided by NASA:

- a. Accept/develop and maintain management and technical information databases needed to execute the contract in accordance with the NBL Database Management Plan, DRD-NOC-26.
- b. Accept, develop, and maintain NBL web pages and databases.
- c. Coordinate with the NASA IT contractor for procurement, installation, administration and maintenance on NASA-supplied equipment.
- d. Procure, install, administer, operate and maintain all IT hardware and software that is not provided by the NASA IT contractor.
- e. Perform software license tracking and maintenance.
- f. Provide for and maintain incremental and full back-ups of all systems for which the Contractor is responsible.
- g. Develop other IT-related documentation, as requested.
- h. Interface with NASA-provided IT resources and systems.
- i. Respond within 5 minutes or less for critical systems (Breathing Gas System (BGS), Environmental Control System (ECS), Space Station Remote Manipulator System (SSRMS), etc.) that impact training/development events or events deemed critical by

- the NBL Office Chief. The Contractor shall provide a status to NASA to resolve the issue within 30 minutes of response.
- j. Identify a point of contact that NASA may reach in its attempts to address IT and IT Security issues. The point of contact shall have the authority to ensure appropriate actions occur.
 - k. The Contractor shall have an Information Systems Security Officer (ISSO) who is responsible for the contractor's system(s) in accordance with the definitions set forth in NPR 2810.1(series) and DRD-NOC-21, Information Technology (IT) Plan and Reports.

The Contractor shall provide and update IT information in the NASA System for Registering and Tracking Applications and Websites (STRAW), or similar Government system. Additionally, the Contractor shall provide and update IT information for the NASA Data Center and Network worksheets in accordance with DRD-NOC-21, Contractor Information Technology (IT) Plan and Reports.

1.9.3 Information Technology Security

The Contractor shall implement an IT security program and execute the IT system security plan provided and maintained by FOD which is in compliance with the most current versions of NPD 2800.1, Managing Information Technology and NPD 2810.1, NASA Information Security Policy. This shall include supporting NASA in audits required by the IT security plan.

All contractor employees shall complete the NASA approved IT Security Awareness Training annually. For contractor employees who function in IT security roles identified in DRD-NOC-21, Contractor Information Technology (IT) Plan and Reports, additional periodic training, specific to their roles is required.

1.10 Documentation Management

The Contractor shall:

- a. Maintain documents (e.g., plans, procedures, reports, drawings, work instructions, technical specifications) to ensure controlled identification, versioning, retention, archiving, and access in accordance with the Configuration Management Plan, DRD-NOC-02 and CA-WI-13, FOD Documentation and Data Control.
- b. Facilitate updates and reviews of documents on NASA Quality Management System (QMS) master lists. Provide document support (e.g., word processing, document formatting) and configuration management for all NBL documents (including CX-level facility documentation).
- c. Generate new documents to support contractual activities (e.g. Work Instructions, Hazard Analysis, Checklists, etc.).
- d. Ensure that only configuration-controlled and approved documents are utilized to support operations
- e. All documents shall be assigned a NASA document number.
- f. All documents shall be reviewed, updated and submitted for NASA approval before the established review cycle date.
- g. The Contractor shall use JSC's Design and Data Management System (DDMS) or a NASA approved drawing and data control system for all engineering data.

- h. The Contractor shall provide access to the native files of all configuration controlled documents.

The Contractor shall provide and maintain an electronic documentation library that:

- a. Is JSC internal network accessible and located on an FOD server.
- b. Allows downloading of NOC documents.

The Contractor shall accommodate approval via electronic signature for documents requiring NASA approval (e.g., Type 1 DRDs, CRs and facility-related CX Master List documents).

The Contractor shall ensure that the review schedule for Type 1 documents includes sufficient time for NASA review and concurrence prior to the scheduled delivery date.

The Contractor shall deliver DRDs by the date specified in the DRD.

1.11 Safety and Health Management

The Contractor shall perform tasks to ensure the protection of personnel, property, equipment, and the environment in contractor products and activities generated in support of institutional and spaceflight program objectives. To ensure compliance with pertinent NASA policies, requirements, federal, state and local regulations for safety, health, environment protection, and fire protection, the contractor will develop and implement a safety and health program per a NASA-approved Safety and Health Plan, DRD-NOC-14. The JPR 1700.1, "JSC Safety and Health Handbook" provides detailed requirements and instructions regarding safety and health procedures and policies at JSC and is incorporated by reference into all JSC contracts when performance is on site at a JSC facility. It can be viewed at <http://jscHandbook.jsc.nasa.gov>.

The contractor shall implement system safety engineering tasks for flight and institutional program activities and products per the schedule and applicable flight and institutional requirements as documented in the contractor's System Safety Program Plan, DRD-NOC-15 that has been approved by NASA. The contractor shall develop and implement risk management techniques (including risk assessment) to be applied to hazards derived from analyses of activities and products for the purpose of eliminating or controlling hazards as specified in NASA policies and requirements for hazard reduction.

The Contractor shall comply with the most current version of JPD 1710.1, Design, Inspection, and Certification of Pressure Vessels and Pressurized Systems.

The Contractor shall ensure that all users comply with the appropriate safety rules, regulations, documentation, and hazard analyses during all activities performed in the facility.

1.12 Environmental and Energy Conservation

The Contractor shall provide data on affirmative procurement, waste reduction activity, energy efficient product procurement, and ozone depleting substances in accordance with Environmental and Energy Consuming Product Compliance Reports, DRD-NOC-16.

1.13 Quality Assurance

The Contractor shall establish and maintain a Quality Assurance (QA) program that complies with the International Organization for Standardization (ISO) document American Society for the current Quality Control (ASQC) ISO-9001-2008– Model for Quality Assurance in Design/Development, Production, Installation, and Servicing.

The Contractor shall:

- a. Perform hardware and software QA.
- b. Provide a quality plan for on-site and off-site resources within this contract and implement a peer review (i.e., QA designee) program as the primary method for all product assurance inspections in accordance with Quality Plan and Reports, DRD-NOC-13.
- c. Collect and compile information derived from Contractor data (e.g., test results, analysis reports, inspection records, discrepancy data, nonconformance data, delivery logs, internal audits, work authorization documents) to demonstrate that the products and services delivered to NASA are in compliance with the requirements and specifications as specified in this contract. The delivery of the compliance information will be at the request of NASA, per the NASA surveillance plan.
- d. Report non-conformances in accordance with Non-conformance Record, DRD-NOC-17.
- e. Share information in accordance with the Government Industry Data Exchange Program (GIDEP) and NASA Advisory Problem Data Sharing and Utilization Program Documentation and Reporting, DRD-NOC-18.

The Contractor shall:

- a. Submit procurement documents to the designated NASA quality representative for determination of the need for Government Source Inspection (GSI) prior to release of the procurement.
- b. Submit all procurement “buy lists” to the designated NASA quality representative prior to release of the procurement in order to determine the need for GSI.
- c. Include the following statements in procurements that require GSI: “All work on this order is subject to inspection and test by the Government at any time and place. The Government quality representative who has been delegated quality assurance functions on this procurement shall be notified immediately upon receipt of this order. The Government representative shall also be notified 48 hours in advance of the time articles or materials are ready for inspection or test.”
- d. Include the following statement in procurements that do not require GSI: “The Government has the right to inspect any or all of the work included in this order at the supplier’s plant.”

NASA disposes all nonconforming products, except rework to specifications. The Contractor shall track and status all anomalies per Section 1.16.3, Technical Problem Process.

The Contractor may use the Receiving and Inspection Test Facility (RITF) training services for hand soldering, electrostatic discharge, and other special processes for personnel certification.

The Contractor shall conduct internal audits. In addition, process audits shall be performed at the request of the JSC Contracting Officer or the COR to provide an assessment of processes to identify generic system anomalies and areas for improvement. The Contractor shall support all audits as directed by the JSC Contracting Officer or the COR.

The Contractor shall coordinate equipment recalibration and maintenance to ensure that all equipment is fully functional, accurate and meets the following NASA certification requirement:

- a. The Contractor shall calibrate Contractor-owned and Government-owned inspection, measuring, and test equipment in accordance with the current version of JPR 1281.11, Metrology and Calibration.
- b. The Contractor shall maintain up-to-date calibration and maintenance records for all equipment, both Contractor and third-party.

The Contractor shall develop a systematic technique to designate certain trained and qualified maintenance, manufacturing, and test personnel to represent the quality assurance organization in performance of selected inspection functions.

- a. The quality control functions of the designees shall be performed as part of their regular duties.
- b. This technique shall be described in the Quality Plans and Reports, DRD-NOC-13.
- c. This technique shall include the identification of hardware, fabrication processes, maintenance, manufacturing flow, and inspection points.

1.14 Risk Management

The Contractor shall institute processes for risk management in compliance with the specifications in the most current version of NPR 8000.4, Risk Management Procedural Requirements and in accordance with the Risk Management Plan, DRD-NOC-05.

1.15 CX Flight Readiness Review (FRR)

The Contractor shall provide a status of the NBL's support capability prior to an EVA and Increment crew FOD FRR. The Contractor shall provide a high level status (stop light chart) to the NBL Office Chief three days prior to the CX FRR review. The Contractor shall follow CX-008, "EVA Robotics and Crew Systems Operations Flight Readiness Review Process" for the level of information and when the reports are required. The chart shall address the status of the areas listed below:

- 1) Completion of the CX12 EVA FRR
- 2) Facility and system status
- 3) Relevant mockup hardware status (1-G and in-water)

The Contractor shall provide a list of all major upgrades, projects, or scheduled maintenance that occurs during the period for the EVA or Increment Crew. This will include a top level milestone to complete the activity and to provide any known issue that impacts the ability to support the EVA or Increment Crew activity.

1.16 Configuration Management

The Contractor shall institute and document processes for managing the configurations of all NOC responsible assets (e.g., hardware, software, data, documentation and displays), to ensure controlled identification, versioning, and access, in accordance with the Configuration Management Plan, DRD-NOC-02.

1.16.1 Technical Change Management

NASA owns the facility architecture and the requirements (i.e., signature approval) and is responsible for approving any changes to the facilities architecture or the requirements. Where changes to the baseline introduce tradeoffs between existing facilities requirements and performance improvements, the NBL Office Chief will be the deciding official with the authority to change or waive the facilities requirement, through the configuration management process. The Contractor shall manage changes and corrections to NOC products, processes and systems to ensure access, tracking, assessment, disposition, and controlled incorporation of proposed changes and corrections that constitute different or corrected facility functionality and performance. The Contractor shall obtain NASA approval prior to any changes in the facility.

1.16.2 Technical Change Process

The Contractor shall manage and track technical change requests (CRs) in accordance with work instruction CX-006, "CX Change Request Process" and the Change Control Process and Plan, DRD-NOC-10.

The Contractor shall use the government provided technical change management system to author, process, and manage CRs. The government provided change management provides the capability for:

- a. Incorporation of existing CR data for all facilities and systems covered in this SOW.
- b. Electronic submittal and authorization of CRs.
- c. Electronic web access to CRs and their current status from a centralized location that does not require an ID or password other than those used for the JSC domain.
- d. User interface with search criteria fields and selection lists.
- e. Electronic access control to CR cost impact information.
- f. Sorting on specified fields.
- g. Reports generation.

1.16.3 Technical Problem Process

The Contractor shall use the government provided system to submit, status, review, and report discrepancies.

The Contractor shall institute processes, procedures, and tools for the identification and documentation of specific corrections to NOC products or processes (i.e., Discrepancy reports (DRs)) that are necessary for compliance with functionality and performance requirements, in accordance with CX12-SLP0003, "NBL Discrepancy Reporting Procedure."

The Contractor shall review DRs with NASA by providing a report listing and characterizing the DRs in the technical baseline for each facility.

The Contractor shall plan DR corrections in accordance with NASA-provided guidance. For DRs, the Contractor shall:

- a. Take responsibility for the discrepancy resolution, including existing discrepancies, for all facilities defined in this SOW.
- b. Document, manage, track, and correct all discrepancies via DRs for Contractor responsible hardware and software.
- c. Respond to DRs based on priority provided by the initiator or NASA.
- d. Provide metrics and project status reports on DR status for the facilities and systems defined in this SOW in accordance with the Technical Metrics Plan and Report, DRD-NOC-22.
- e. Schedule and support DR Review Boards (DRRB) to ensure the timely closure of DRs.

1.16.4 Contract Change Management

The Contractor shall institute processes for managing changes to the core contract requirements established on NOC to enable tracking, assessment, disposition, and controlled incorporation of those changes by both the Contractor and NASA in accordance with the Configuration Management Plan, DRD-NOC-02.

1.17 Property

The Contractor shall be responsible for the maintenance of all Government property that has been identified on this contract. The physical equipment and software that represent the facilities and systems defined in this SOW are classified as Government property.

“Contractor-acquired property” means property acquired, fabricated, or otherwise provided by the Contractor as a direct contract charge to NASA for performing the contract, and to which NASA has title.

Attachment J-12, On-site Installation Accountable Property, identifies the on-site Government property made available on a no-charge basis for use in performance of NOC (see Clause G.5, Installation-Accountable Government Property).

1.17.1 Government Property

The Contractor shall document and maintain NOC government property management processes and procedures in accordance with the Government Property Management Plan, DRD-NOC-09. The Contractor shall provide custodians to input and manage data in the Government’s property tracking system for property provided under this contract as Installation-Accountable Government Property (IAGP). The Contractor shall track and be accountable for all Contractor-acquired Government property and GFP with its own tracking system. The Contractor shall provide reports and inventories in accordance with Reports Required for Logistics, DRD-NOC-12.

The Contractor shall designate a property administrator and point-of-contact for NOC Government property administration and management.

1.17.2 Contractor-Owned Capital Property

The Contractor shall track Contractor-owned capital property separately from Government property.

1.17.3 Charging of Office Supplies

The Contractor shall address how generic office supplies procured in support of the NOC contract will be charged. Specify whether as a direct charge to the NOC contract or an indirect charge or other. Direct charged office supply shall be managed and administered in accordance with the requirements of FAR 52.245-1, regardless of “unit cost.”

1.18 Equipment Replacement/Obsolescence

The Contractor shall provide and maintain a plan to prevent the obsolescence of Government property identified in SOW Section 2.17, in accordance with the Maintenance Plan, DRD-NOC-11.

The Contractor shall define equipment replacement content within the FY Operating Plan and Planning, Programming, Budgeting and Execution, DRD-NOC-06.

1.19 Training Coordination and Records

The Contractor shall establish, track, and status all NOC training processes and records to ensure completeness and timeliness of certifications and other required training. The Contractor shall use the government provided training management and scheduling tool.

The Contractor shall:

- a. Provide advanced notification of required training (including re-certifications and yearly center-wide training) for all NOC personnel.
- b. Provide advanced notification of re-certifications involving NOC-provided training for non-NOC personnel.
- c. Coordinate training and certification support to NOC instructors.
- d. Ensure that all training records are accurate and up-to-date.
- e. Provide input and recommendations to current certification processes/requirements, and program/facility/individual training plans.
- f. Provide data and/or interfaces to other NASA training records as appropriate.
- g. Ensure that all personnel certifications are maintained in the NASA provided system (i.e. active, expired, etc.).

2.0 Facility Operations, Sustaining, and Upgrades

The Contractor shall adhere to the following tier one policy documents which provide the rules and regulations for operating and maintaining the NBL. The Contractor shall adhere to all lower tier documents referenced in a Tier 1 document.

CX12-POL0001, NBL General Operating Plan
CX12-POL0002, NBL Standard Operating Plan
CX12-POL0004, NBL Training and Certification Policy
CX12-POL0005, NBL/LMF Engineering Policy

CX12-POL0006, NBL/LMF Maintenance Policy
CX12-POL0007, NBL Safety and Mission Assurance Policy
CX12-SLP0114, SCTF Lifting Policy
CX12-POL0009, LMF Standard Operating Policy
CX-POL0024, NBL/SVMF System Entry Control Program

The System Level Procedures (SLPs) are in the second tier of documentation and provide descriptions and constraints of the events that can be conducted within the facilities. The third and final tier of documentation is the Work Instructions (WIs) and Unique Work Instructions (UWIs) that provide the employee with specific direction for the job responsibilities. The checklists and forms are resident or referenced at the WI and UWI level and provide additional guidance and direction for critical processes and procedures.

The Contractor shall perform the work in the NBL documents that are defined for “general contractor” and for “Operations Contractor.”

The Contractor shall provide a twelve-month projection of all NBL events in accordance with the Technical Metrics Plan and Reports, DRD-NOC-22.

The Contractor shall manage, develop, modify, sustain and operate the NBL and supporting functions defined in this SOW. The Contractor shall ensure the availability, integrity and reliability of the facility.

The Contractor shall provide management and control of the facility hardware, software, and data configurations for the purpose of ensuring the facility is ready to support the flight/mission manifests.

The Contractor shall adhere to the standards and processes specified in the most current version of JSC-63756, Flight Operations Directorate Software Management Plan (SMP) for all Contractor supplied software.

2.1 Operations

2.1.1 Scheduling

For all NBL events, the Contractor shall:

- a. Coordinate, schedule, and obtain NASA approval as needed.
- b. Ensure there are no conflicts between individual events, or between individual events and activities necessary to operate/maintain the facility.
- c. Confirm that the necessary equipment, facilities, and personnel are scheduled and available. If the necessary equipment, facilities, and personnel are unavailable or out of service, the Contractor shall make notifications per NBL procedures.
- d. Utilize the Government provided software for training scheduling.
- e. The Contractor shall provide a representative to the Long Range Planning (LRP) meeting to ensure that the facility and operational support can meet the requirements of NASA. Changes to the LRP must have NASA approval.

2.1.2 Operations Control

The Contractor shall:

- a. Serve as the JSC point of contact for all operations in the facility as defined by this SOW.
- b. Provide a representative who is cognitive of all operations within the NBL.
- c. Provide emergency and safety coordination.
- d. Provide cognizance of, and obtain NASA approval for, all non-NOC work in operational areas.
- e. Monitor and control access into the facility in compliance with JSC Security rules and policies.
- f. Serve as the point of contact and notify NASA and contract management when out-of-family (off-nominal) events occur in the facility (e.g., close calls, mishaps, security breaches, critical DRs).
- g. Staff the Operations Control Center (OCC) desk between the hours of 7AM and 5PM local time on all JSC work days (Monday – Friday). Provide additional OCC operation outside these hours upon request by NASA. (Reference NBL-OCC-M003, “NBL Operations Control Center Procedures”)
- h. Collect performance feedback from all facility users and report the results to NASA in accordance with the Daily/Summary Reports, DRD-NOC-24.
- i. Provide a daily report of NBL in-water activities in accordance with the NBL In-water Activity Data Pack per DRD-NOC-24.
- j. The Contractor shall operate the NBL Operations Control Center as defined in NBL-OCC-M0003, “NBL Operations Control Procedures.”

2.1.3 Event Support

The Contractor shall configure the facility to support all scheduled events and operate requested facility equipment in support of each event (e.g., breathing gas systems).

The Contractor shall verify the functionality of all equipment prior to the start of an event (e.g., ensure batteries are fully charged, equipment functions as expected, and equipment does not have visible damage). Exceptions can be made for equipment provided by non-NBL entities over which the facility has no control (e.g. Class-III hardware, instructor provided hardware).

The Contractor shall troubleshoot and resolve equipment or operational anomalies in real-time wherever possible, in support of the event.

The Contractor shall operate and maintain new mockups, trainers and systems upon NASA acceptance. New mockups, trainers or systems will be of a magnitude of less than 10% of the existing mockups, trainers or systems.

The Contractor shall support activities outside of JSC that will require travel. The contractor may perform open water operations as long as they have been approved by NASA prior to the event. (Reference JPR 8715.2 JSC Safety Standard For Underwater Operations).

The Contractor shall provide integration functions for suited operations in accordance with CX12-SLP0015, “NBL Test Integration Procedure.”

The Contractor shall provide suited testing support in accordance with CX12-SLP0006, “NBL Suited Testing Procedures.”

If Nitrox dive operations occur outside regular business hours, the Contractor shall provide certified Hyperbaric Chamber Operators. The Contractor shall coordinate with the Neutral Buoyancy Office Chief and the Human Test Support Group (HTSG) to schedule the training.

The Contractor shall provide configured scuba support in accordance with CX12-SLP0008, “NBL Configured SCUBA Event System Level Procedure.”

The Contractor shall provide 1-G activity support in accordance with CX12-SLP0009, “NBL 1-G Event Procedure.”

The Contractor shall provide diving and swimming services in accordance with CX12-SLP0010, “NBL Diving and Swimming System Level Procedure.”

The Contractor shall operate the critical systems in accordance with the following WIs:

- a. Video:
 - i. CX12-UWI0010, “NBL Video Console Operator Work Instruction”
- b. Communications:
 - i. CX12-UWI0011, “NBL Communications Operator Work Instruction Procedure”
 - ii. NBL-CS-COMM-WI0012, “NBL Diver Voice Communication System Operations and Maintenance Procedures”
- c. Breathing Gas System:
 - i. CX12-UWI0027, “NBL Breathing Gas Operator Work Instruction”
 - ii. NBL-CS-BGS-M0004, “NBL Breathing Gas System Operations Manual”
- d. Clean Room:
 - i. NBL-CS-CLN-WI0002, “NBL Clean Room Procedures”
- e. Pressure Testing Equipment:
 - i. NBL-CS-FAC-WI0005, “NBL Pneumatic and Hydrostatic Test Bench Procedures”
- f. Environmental Control System:
 - i. CX12-UWI0026, “NBL Environmental Control System Operations Work Instruction”
- g. Robotics:
 - i. CX12-UWI0025, “NBL Robotic Systems Test Duty Station Work Instruction”
 - ii. NBL-CS-ROBSS-TSP0058, “NBL SSRMS Rules”
 - iii. NBL-CS-ROBTS-M0001, “NBL Hydraulic Test Stand Hydraulic Power Unit Operations”
- h. Water Treatment System:
 - i. NBL-CS-WTS-WI0025, “NBL Water Treatment System Operations Procedures”
- i. Tank:
 - i. NBL-CS-WTS-WI0030, “NBL Pool Wall Inspection Procedures and Guidelines”
- j. Lifting:
 - i. CX12-SLP0114, “SCTF Lifting Procedures”

2.1.4 Real-time Mission Support

The Contractor shall activate and configure the facility, as requested by NASA (e.g., nights, weekends, holidays), to support ongoing spaceflight operations, in accordance with CX12-POL0002, “NBL Standard Operating Plan”.

2.1.5 Tours, Media, and Special Event Support

The Contractor shall provide tour, media, and special event support as defined in NBL-OCC-M0003, “Neutral Buoyancy Laboratory Operations Control Procedures.”

The Contractor shall perform informal guided tours of the facility on a non-interference basis.

2.2 Sustaining Engineering and Maintenance

The Contractor shall maintain all NBL equipment and software contained within Attachment J-19 and Attachment J-12, in accordance with the Maintenance Plan, DRD-NOC-11. An existing system is available for tracking maintenance

The Contractor shall:

- a. Diagnose, correct, and document hardware and software discrepancies.
- b. Refurbish or replace worn hardware in accordance with the Maintenance Plan, DRD-NOC-11.

The Contractor shall obtain NASA approval for any maintenance, repair, or replacement activity not covered by the Maintenance Plan, DRD-NOC-11.

The Contractor shall update and maintain a data package on each major mockup and system, and provide an annual report of the data packages in accordance with the Mockup and Systems Data Status Report, DRD-NOC-30. The current list of major mockups and systems are provided in the Mockups and Systems List (Attachment J-19).

The Contractor shall notify the NBL Office Chief of any discrepancy that could potentially impact on-orbit equipment or on-orbit mission operations. Upon NASA concurrence, the Contractor shall notify the NASA program’s (e.g., ISS) subsystem manager (or his/her representative).

The Contractor shall maintain a critical spare inventory for items that must be kept on-hand to maintain operations or items that have long lead times to procure.

The Contractor shall report and correct discrepancies found per CX12-SLP0003 “NBL Discrepancy Reporting Procedure.”

The following documents provide the current process to perform maintenance for mockups, Material Handling Equipment (MHE), and systems. Any deviations from these procedures must be documented in the Maintenance Plan, DRD-NOC-11.

- a. NBL-Maint-L0010, “NBL Maintenance Plan”
- b. NBL-ENG-WI0167, “NBL Integration Engineering Team Work Instruction”
- c. NBL-CS-SCU-WI0056, “Dive Systems/SCUBA Technician”

2.2.1 Facility and Installation Maintenance

The Contractor shall provide a clean, safe, and well-organized working environment for NBL users at all times.

With NASA approval, the Contractor shall perform, or coordinate with JSC's Center Operations Directorate (COD) to have them perform, facility maintenance activities required to maintain the NBL in fully-functional, showcase-like condition (e.g., clean/paint the facility, repair/replace equipment). Reference: JSC-27049 MOU between Center Operations Directorate and Mission Operations Directorate.

The Contractor shall be responsible for internal power (between equipment and circuit breaker box) and data distribution within each facility, NSOC-SHE-P0155, "NSOC Electrical Safety Program."

The Contractor shall monitor all public affairs-related displays and display areas and notify NASA when repairs, maintenance, or upgrades are necessary.

With NASA approval, the Contractor shall coordinate with JSC's COD for maintenance, engineering and operation of installation-provided services (e.g., power, heating, ventilation, air conditioning, and safety controls).

2.3 Projects

NASA will determine all facility requirements. The Contractor shall implement NASA-approved requirements for development and modification/changes.

2.3.1 Core Projects:

Core projects include but are not limited to: system development, system/mockup upgrades, integration of GFP, mockup development and manufacture, software development and new documentation.

The Contractor shall:

- a. Provide core project support for all facilities defined in this SOW and Clause H.11, Workload Sizing.
- b. Comply with the technical change process defined in section 1.16.2 of this SOW.
- c. Compile and maintain a tech plan that outlines all of the core projects planned for the fiscal year.
 - i. The initial FY tech plan shall be presented to and approved by NASA no later than August 31 of the prior FY. (For contract year one, this date shall be no later than 30 days after contract start)
 - ii. All changes to the current year tech plan shall be approved by NASA and presented by the contractor at the appropriate control board if requested by NASA.

2.3.2 Future Projects:

The Contractor shall support NASA planning for future projects by:

- a. Providing preliminary estimates of project cost, schedule, and workload leveling.
- b. Recommending projects, requirements, and priorities.
- c. For projects selected by NASA, the Contractor shall obtain NASA approval to prepare, plan, and estimate.
- d. Work to perform these projects shall be authorized in accordance with SOW Section 4.0, IDIQ Orders / Projects

The Contractor shall perform all activities necessary to complete approved CRs.

For GFP, the Contractor shall provide NBL expertise during design, implementation, and initial deployment in the NBL.

2.4 External Customers

The Contractor shall provide facility support services for non-FOD users in NOC facilities, consisting of the functionalities defined in this SOW, and in accordance with the External Customers Plan, DRD-NOC-04 and the CX NBL/SVMF Operations Contract External Customer Policy (CX-POL0002).

The Contractor shall secure External Customers to utilize the NBL without compromising safety, process integrity or infrastructure resources, in accordance with the External Customers Plan, DRD-NOC-04. This work is performed under a Space Act Agreement (SAA) between NASA and the NOC Contractor.

The Contractor shall perform the following, in accordance with External Customers Plan (Attachment J-04):

- a. Maintain and improve the infrastructure to support External Customers and development of supporting documentation (e.g., NBL work instructions, facility layouts, operational and facility constraints).
- b. Recruit External Customers that are able to comply with all applicable NASA constraints and policies.
- c. With NASA approval, identify and propose resolutions to External Customer issues.
- d. Upon NASA direction, provide input to External Customer documentation (e.g., NASA CRs and DOs, draft SAAs, draft Integrated Task Agreements (ITAs)).
- e. Facilitate transition of existing External Customers to maintain activities from contract start.
- e. Facilitate transition of External Customer utilization of the NBL across the end of the contract period of performance.

Execution of External Customer agreements shall be in accordance with Clause H.8, Non-Government Use of NASA Facilities.

2.5 Support Services

2.5.1 Safety

2.5.1.1 Pre-event Safety

The Contractor shall ensure that NBL events satisfy all applicable safety requirements before they occur (e.g., an engineering evaluation cannot be conducted if the required TRR has not been completed).

The Contractor shall coordinate the preparation and execution of SRs and TRRs in accordance with, CX-007, "Safety Review/Test Readiness Review Process". To accomplish this task the Contractor shall:

- a. Identify all events, equipment and user-provided equipment for which a SR or TRR is required.
- b. Schedule all required SRs and TRRs.
- c. Coordinate with all affected personnel to ensure that the required products will be prepared or updated and distributed in time for the SR or TRR event.
- d. Participate in SRs and TRRs.
- e. Coordinate, verify, and report SR and TRR action item completion.
- f. Provide a meeting facilitator to coordinate the completion and electronic filing of the SR and TRR forms, which includes recording actions.
- g. Provide SR and TRR status to management, which at a minimum includes the outcome of the review and the action list due dates.

2.5.1.2 Health and Safety

The Contractor shall provide a resident point of contact for health and safety who shall:

- a. Serve as the focal point to ensure the safety and health of the buildings' users.
- b. Initiate/facilitate and document facility safety and health management policies and procedures.
- c. Communicate institutional and occupational safety and health information to the buildings' users.
- d. Plan, coordinate, and lead facility safety inspections, as established in the most current version of JPR 1700.1. Track anomalies identified during inspections through closure.
- e. Plan, coordinate, and lead monthly safety stand-down days.
- f. Organize and lead all Safety, Health, and Maintenance events.
- g. Initiate, conduct and report results of safety investigations.
- h. Implement NASA approved corrective actions from safety investigations.
- i. Provide SCTF JSAT representative as directed.

2.5.2 Facility Manager

The Contractor shall provide a primary or alternate facility manager who shall:

- a. Perform the JSC FM duties as defined in JWI-8831.1, Facility Manager Program.
- b. Monitor and ensure that all NBL facility functionality is maintained. Monitor and oversee all work performed by JSC COD to ensure that the facility functionality is maintained in accordance with NBL safety policy. Status of all open work orders should be reported to management for further evaluation and consideration. The FM shall address issues in real-time to reduce impacts to events.

- c. Recommend, maintain, and prioritize a list of proposed modifications to the NBL and JSC COD buildings and building equipment in support of NOC. Upon NASA approval, the FM shall initiate the associated work requests (e.g., Work Authorization Document (WAD), CR, Delivery Order (DO)).
- d. Coordinate with other JSC Facility Managers and JSC Alternate Facility Managers, as required.
- e. Review and approve critical lift packages. (Reference JPR 1700.1, "JSC Safety and Health Handbook")

The Contractor shall:

- a. Coordinate and obtain NASA/NBL Office Chief approval prior to any changes to floor space and office space usage.
- b. Provide oversight and integration of facility projects within the NBL.
- c. Maintain drawings of the layout of facility floor space, including the location of utilities.

2.5.3 Training

The Contractor shall:

- a. Provide and maintain trained and certified personnel, in accordance with the Training and Certification Plan, DRD-NOC-23.
- b. Complete Center-wide training requirements for all affected NOC personnel.
- c. Provide any NOC technical training or certifications to non-NOC personnel, as requested by NASA.
- d. Provide one hour per work-day for physical fitness for all personnel whose primary assignment is classified as "Safety Diver" or "Utility Diver" per CX12-POL0002 (NBL Standard Operating Policy). This time shall be considered core work due the physical requirement to perform the HUT swim annually per CX12-POL0004 NBL Training and Certification Policy.

2.6 Public Affairs Support

The Contractor shall support Public Affairs Activities as requested by NASA in accordance with Clause H.11, Workload Sizing.

3.0 IDIQ Task Ordering / Projects

Sections 2.0 and Section 3.0 of the SOW are global in application and apply to this section. If required, additional required services for discreet tasks above the core requirements may be authorized in accordance with Clause I.14, Task Ordering Procedure, through the issuance of IDIQ orders.

NASA will determine all additional requirements.

Examples of IDIQ TO projects include but are not limited to:

- a. Implementation and execution of major new mockups/systems
- b. Major system/facility upgrades
- c. NASA-contracted External Customer agreements, and

- d. Maintenance, engineering, and operation of installation-provided services at NASA direction.

The Contractor shall comply with the technical change process defined in section 1.16.2 applies to all orders issued under this section.

The Contractor shall perform all activities necessary to complete approved orders.

Appendix A: Acronyms

Certain acronyms used in this Statement of Work are listed and defined below. This appendix is for informational purposes only. If and to the extent any definition contained below conflicts with any other portion of the contract, the other portion of the contract shall prevail.

ACA – Associate Contractor Agreement
CAP – Contractor Acquired Property
CFP – Contractor Furnished Property
COD – Center Operations Directorate
COR – Contracting Officer’s Representative
CR – Change Request
DR – Discrepancy Report
DRD – Data Requirements Deliverable
EMU – Extravehicular Mobility Unit
EVA – Extravehicular Activity
FM – Facility Manager
FOD – Flight Operations Directorate
FY – Fiscal Year
GFP – Government Furnished Property
GIDEP – Government Industry Data Exchange Program
GSI – Government Source Inspection
IAGP – Instillation – Accountable Government Property
IDIQ – Indefinite Delivery Indefinite Quantity
ISS – International Space Station
IT – Information Technology
IVA – Intra-vehicular Activity
JSC – Johnson Space Center
LMF – Logistics and Mockup Facility
MOD – Mission Operations Directorate (read as FOD for the purposes of this SOW)
MOU – Memorandum of Understanding
NASA – National Aeronautics and Space Administration
NBL – Neutral Buoyancy Laboratory
NPR - NASA Procedure Requirement
OCC – Operations Control Center
OFI – Offer Fill In
OSHA – Occupational Safety and Health Administration
PAO – Public Affairs Office
PCS – Portable Computer System
PPBE – Planning, Programming, Budgeting and Execution
QA – Quality Assurance
QMS – Quality Management System
SCUBA – Self-Contained Underwater Breathing Apparatus
SCTF – Sonny Carter Training Facility
SLP – System Level Procedure
SOW – Statement of Work
SR – Safety Review

SMP – Software Management Plan
SSC –Station Support Computer
STRAW - NASA System for Registering and Tracking Applications and Websites
TCSR – Technical, Cost, and Schedule Review
TO – Task Order
TRR – Test Readiness Review
UWI – Unique Work Instruction
WAD – Work Authorization Document
WI – Work Instruction

Appendix B: Definitions

Discrepancy – An item that fails to meet a specific requirement; an anomaly.

Discrepancy Report – A record describing discrepant hardware, system, or procedure.

Equipment – Mockups, trainers, systems, portable equipment, tools, or machinery.

Event – Any activity that takes place in the NBL. Examples include: classes, engineering evaluations, tests, practice sessions, maintenance actions, and tours. Events may be scheduled or unscheduled. Events that are subject to the workload sizing clause are further identified and characterized in Clause H.11 (Workload Sizing Data).

Facility – The systems and subsystems of integrated hardware and software used in the preparation for and performance of mission operations. The term “facility” does not refer to “brick and mortar” buildings or building functions, such as lighting, and environmental control. A memorandum of understanding (MOU) between FOD and the Center Operations Directorate (JSC-27049, MOU and Standard Interface Plan between COD and MOD for Support of MCC Operations and NSOC Operations) is contained in the technical library. This MOU outlines the responsibilities of the COD contractor and the eventual NOC contractor with respect to the building and building systems.

Installation-Provided Services – Basic services and utilities provided by JSC to each of its buildings or facilities to keep them safe, physically intact, and usable for its assigned function. The following are examples: electrical power, environmental control (heating/ventilation/air conditioning), lighting, structural or roofing repair when necessary, and emergency services (fire, security).

User – Anyone who uses the facility to accomplish their work. The following are examples: NBL employees, instructors who teach classes, Astronauts who receive training, guides who lead tours, scientists and engineers who conduct research, tests or evaluations, people participating in tours, and other guests.

Appendix C: Performance Standards

The following Performance Standards are applicable to all contract requirements.

1. Required Service: Provide operational facilities to support user events at the NBL.
Standard of Excellence: 98% availability and functionality to support scheduled events due to factors within the scope of the SOW.
Minimum Requirement: 95% availability and functionality to support scheduled events due to factors within the scope of the SOW.
2. Required Service: Ensure NBL user satisfaction
Standard of Excellence: The aggregate score for internal customer evaluations shall be greater than 98%.
Minimum Requirement: The aggregate score for internal customer evaluations shall be greater than 95%.
3. Required Service: Perform Project development and implementation: all projects meet all technical requirements.
Standard of Excellence: 100% of approved projects are executed in accordance with the approved schedule, cost estimates are within +/- 5% of the actual costs (aggregate).
Minimum Requirement: 95% of approved projects are executed in accordance with the approved schedule, cost estimates are within +/- 10% of final actual costs (aggregate).
4. Required Service: Provide problem identification and resolution at the NBL.
Standard of Excellence: Contractor communicates technical, cost, and schedule problems to NASA, including recommended corrective actions, in time to resolve the problem before impact occurs. One or fewer deviation, waiver, or exception to policy/ constraint is presented each period.
Minimum Requirement: Contractor communicates technical, cost, and schedule problems to NASA, including recommended corrective actions, in time to resolve the problem before impact occurs. No more than two deviations, waivers, or exceptions to policies/constraints are presented each period.
5. Required Service: Support External Customers
Standard of Excellence: Contractor communicates external customer cost savings standard of excellence in the External Customers Plan (Attachment J-04).
Minimum Requirement: Contractor communicates external customer cost savings minimum requirement in the External Customers Plan (Attachment J-04).

[END OF SECTION]