

**Performance Work Statement**  
**Subject Matter Specialist (SMS) Support to the Exploration Launch Office – Project and Elements**

## **1.0 Objective**

NASA's Exploration Initiative will require development of the Ares I by the 2013 timeframe and Ares V to support the lunar mission in 2018. In order to execute the Ares I and Ares V Projects, Marshall Space Flight Center (MSFC) has been tasked to provide overall management and integration of the Ares I and Ares V elements.

Throughout the design & development phases of the Ares I and Ares V, the Ares I Project and its associated Elements require SMS support to facilitate key trade studies and decision analyses using advanced techniques. The design decisions involve all elements of the Ares I and Ares V programs as we seek to find balanced solutions to multidisciplinary problems. For both the Ares I and Ares V Projects, specific work task(s) to accomplish these objectives follow.

## **2.0 Specific Task Areas**

### **Task 1: Subject Matter Specialist (SMS) for Project Definition and Control - Exploration Launch Office – Project Office Level**

The Exploration Launch Office (ELO) requires project planning and control support during the design, development, and test phases of the Ares I and Ares V. The contractor shall provide support, which includes mentoring, in concept and requirements definition, systems engineering, program cost and schedule projections, acquisition planning and alternatives analysis, and availability and application of advanced technologies. Typical activities the contractor shall support include attending program reviews, preparing comments and recommendations on technical approaches, participating in meetings leading to the selection and implementation of design and technical approaches to meet baseline architectures and plans, and serving on internal independent review teams. The contractor shall review technical reports, requirements documents, and engineering memorandums for technical adequacy and content. The contractor shall prepare and deliver technical and programmatic briefings as requested by the government.

### **Travel Estimate**

- One (1) 3-day trip to Johnson Space Center in Houston, TX per Quarter
- One (1) 3-day trip to NASA Headquarters in Washington, DC per Quarter

### **Deliverables**

The contractor shall provide a Monthly Status Report in contractor format that consists of any briefings, documents, analyses, hours expended with number of personnel or FTE, and trip reports produced in support of the Exploration Launch Office during the month and provide oral status reviews with the Project Manager as required (Per DRD 1236MA-001).

## **Task 2: Subject Matter Specialist (SMS) to the Exploration Launch Office – Vehicle Integration Office**

The ELO Vehicle Integration Office requires project planning/documentation development, acquisition planning and alternatives analyses during the design, development, and test phases of the Ares I and Ares V – specifically in the definition of the Demonstration Flight Test (DFT) and with respect to assessing vehicle operability challenges. The contractor shall provide support, which includes mentoring, in concept and requirements definition, systems engineering, program cost and schedule projections, and availability and application of advanced technologies as they apply to the first DFT and vehicle design operability. These activities shall include attending program reviews, preparing comments and recommendations on technical approaches, and participating in meetings leading to the selection and implementation of design and technical approaches to meet the test requirements. The contractor shall also review technical reports, requirements documents, and engineering memorandums for technical adequacy and content. The contractor shall prepare and deliver technical and programmatic briefings as requested by the government. The contractor shall provide expertise in the following specific areas:

- Ground Processing
- Flight Test
- Test & Verification and Independent Verification and Validations
- Flight Dynamics
- Post-Flight analysis
- Guidance, Navigation and Control

### **Travel Estimate**

- One (1) 3-day trip to Johnson Space Center in Houston, TX per Quarter
- One (1) 3-day trip to Kennedy Space Center, FL per Quarter

### **Deliverables**

The contractor shall provide a Monthly Status Report in contractor format that consists of any briefings, documents, analyses, hours expended with number of personnel or FTE, and trip reports produced in support of the Exploration Launch Office during the month and provide oral status reviews with the Project Manager as required (Per DRD 1236MA-001).

## **Task 3: Subject Matter Specialist (SMS) support to the Exploration Launch Office – First Stage Office**

The ELO First Stage Office requires technical support during the design, development, and testing phases of the Ares I and Ares V Solid Rocket Motors and the Solid Rocket Booster Systems (SRM/SRBS). The contractor shall provide interface support between the First Stage element and RSRM to ensure proper technical integration between the offices. Work scope of this task includes providing technical support for design, development, and test activities. The contractor shall provide support, which includes mentoring, in requirements definition, development content, and schedule and planning. The contractor shall provide independent technical analyses as required. The contractor shall attend program reviews, prepare comments

and recommendations on technical approaches, and participate in meetings leading to the selection and implementation of design and technical approaches to meet baseline architectures and plans. The contractor shall review technical reports, requirements documents, and engineering memorandums for technical adequacy and content. The contractor shall prepare and deliver technical and programmatic briefings as requested by the government. As a specialty area of expertise, the contractor shall provide technical and programmatic expertise to insure acceptability of pyrotechnic hardware to support the Ares I schedule and that all Element pyrotechnic activities are in compliance with the Constellation Spacecraft specifications. The specialist shall provide support for trade studies for pyrotechnic systems and components for Ares I, provide support for the evaluation of heritage Space Shuttle hardware for use on the Ares I, serve as a member of the Ares I Pyrotechnic Working Group and serve as a member of the Ares I Range Safety Panel

### **Travel Estimate**

- One (1) 3-day trip to ATK Thiokol, Brigham City, Utah per Quarter
- One (1) 3-day trip to Kennedy Space Center, FL per Quarter

### **Deliverables**

The contractor shall provide a Monthly Status Report in contractor format that consists of any briefings, documents, analyses, hours expended with number of personnel or FTE, and trip reports produced in support of the Exploration Launch Office during the month and provide oral status reviews with the Project Manager as required (Per DRD 1236MA-001).

### **Task 4: Subject Matter Specialist (SMS) to the Exploration Launch Office – J2-X Engine Office**

The ELO J2-X Engine Office requires project planning/documentation development, acquisition planning and alternatives analyses during the design, development, and test phases of the Ares I and Ares V – J2-X Engine. The contractor shall provide support, which includes mentoring, in concept and requirements definitions, systems engineering, program cost and schedule projections, and availability and application of advanced technologies as they apply to the J2-X Engine. These activities shall include attending program reviews, preparing comments and recommendations on technical approaches, and participating in the selection and implementation of design and technical approaches to meet baseline architectures and plans. The contractor shall review technical reports, requirements documents, engineering memorandums for technical adequacy and content. The contractor shall prepare and deliver technical and programmatic briefings as requested by the government. The contractor shall provide expertise in the following specific areas:

- Engine Requirements Development
- Engine Test and Verification
- Engine Development
- Engine Manufacturing

## **Travel Estimate**

- One (1) 3-day trip to Johnson Space Center in Houston, TX per Quarter
- One (1) 3-day trip to Pratt-Whitney Rocketdyne, LA, CA per Quarter

## **Deliverables**

The contractor shall provide a Monthly Status Report in contractor format that consists of any briefings, documents, analyses, hours expended with number of personnel or FTE, and trip reports produced in support of the Exploration Launch Office during the month and provide oral status reviews with the Project Manager as required.

## **Task 5: Subject Matter Specialist (SMS) to the Exploration Launch Office – Upper Stage Office**

The contractor shall provide experienced highly qualified technical and program Subject Matter Experts to support the NASA/MSFC Exploration Launch Office, Upper Stage Element the following areas:

Project planning/documentation development, acquisition planning and alternatives analyses during the design, development, and test phases of the Ares I and Ares V – Upper Stage and Earth Departure Stage. The contractor shall provide support, which includes mentoring, in concept and requirements definitions, systems engineering, program cost and schedule projections, and availability and application of advanced technologies as they apply to the Upper Stage. These activities shall include attending program reviews, preparing comments and recommendations on technical approaches, and participating in the selection and implementation of design and technical approaches to meet baseline architectures and plans. The contractor shall review technical reports, requirements documents, engineering memorandums for technical adequacy and content. The contractor shall prepare and deliver technical and programmatic briefings as requested by the government. The contractor shall provide expertise in the following specific areas:

- Upper Stage Requirements Development
- Upper Stage Test and Verification
- Upper Stage Development Planning
- Upper Stage Manufacturing and Assembly
- Upper Stage Design Analysis
- Upper Stage Integrated Logistics

## **Travel Estimate**

- One (1) 3-day trip to Johnson Space Center in Houston, TX per Quarter
- One (1) 3-day trip to Michoud Assembly Facility/New Orleans, LA per Quarter

## **Task 6: Subject Matter Specialist (SMS) to the Exploration Launch Office – Flight Integration & Test Office**

The contractor shall provide experienced highly qualified technical and program subject matter expertise to support the NASA/MSFC Exploration Launch Office Ares I-X and Flight Integration Test in the following areas:

The contractor shall evaluate technical progress on the Ares I-X program and other FITO activities on specific items, including, but not limited to: nose cap ejection system shock mitigation effort, parameters and Guidance, Navigation and Control software modes and models, and the contractor shall perform risk assessment and management actions from a technical perspective as required. The contractor shall review technical reports, requirements documents, and engineering memorandums for technical adequacy and content and prepare and deliver technical and programmatic briefings as requested by the government. The contractor shall support project planning/documentation development, acquisition planning and alternatives analyses during the design, development, and test phases of the Ares I-X Mission – specifically in the definition of the Demonstration Flight Test (DFT) requirements, data generated, interface with other ELO activities and with respect to assessing vehicle ground support/ operations challenges. These activities shall include attending program reviews, preparing comments and recommendations on technical approaches, and participating in meetings leading to the selection and implementation of design and technical approaches to meet the test requirements. The contractor shall also review technical reports, requirements documents, and engineering memorandums for technical adequacy and content and shall prepare and deliver technical and programmatic briefings as requested by the government. The contractor shall provide expertise in the following specific areas:

- Ground Processing
- Flight Test
- Test & Verification and Independent Verification and Validations
- Flight Dynamics
- Post-Flight analysis
- Safety and Mission Assurance

### **Travel Estimate**

- One (1) 3-day trip to Johnson Space Center in Houston, TX per Quarter
- One (1) 3-day trip to Langley Research Center Hampton, VA per quarter

### **3.0 Performance Requirements Summary (PRS)**

The following columnar section defines the PRS for the tasks detailed above. Not all efforts under this order are included in the PRS. Lack of inclusion in the PRS in no way relieves the contractor of the obligation to perform all delineated tasks.

**Level of Acceptable Performance:** The Level of Acceptable Performance is the measure used by the Government to evaluate the contractor's quality control on a monthly basis. Performance

below this level indicates the contractor's quality control is unsatisfactory. The Level of Acceptable Performance for each work environment is specified in the PRS below.

**Deduction Methodology:** The deduction taken for unsatisfactory performance of individual tasks is measured per incident. Each incident shall reduce the value of the invoice associated with the evaluation period in which the incident was observed by the Government. The amounts to be deducted per incident are shown in the PRS below.

#### PERFORMANCE REQUIREMENTS SUMMARY

REQUIRED SERVICE	PERFORMANCE STANDARD	LEVEL OF ACCEPTABLE PERFORMANCE	METHOD OF SURVEILLANCE
Tasks 1 – 6 Appropriate Subject Matter Specialists	The contractor shall provide technically acceptable Subject Matter Specialists for Tasks 1 – 6	0 Incidents  Incidents are limited to the assignment of technically unacceptable personnel.  <u>Dollar deduct for Incident</u> Per incident=\$2,500	COTR review of contractor assigned personnel and general level of services provided.

#### 4.0 Data Deliverables:

The contractor shall report and document this work and fulfill the requirements of associated Data Requirement Descriptions (DRD's) as outlined in Data Procurement Document (DPD) 1236 (Attachment J-3). The contractor shall determine the data restriction that applies to each data deliverable and mark or transmit the data restriction in accordance with section 2.3.3 of the Data Procurement Document.

The contractor shall develop and implement a comprehensive information technology security program which addresses the management, operational, and technical aspects of protecting the confidentiality, integrity and availability of information and information technology systems. The IT security program shall ensure the contractor is responsible for information and IT security when physical or electronic access to NASA's computer systems, networks, or IT infrastructure is required or when information systems are used to store, generate, process or exchange information with NASA or on behalf of NASA, regardless of where the information resides. The contractor shall develop and submit a Contractor IT Security Program Plan in accordance with DRD 1236CD-001.

The contractor shall prepare and submit a Monthly Status Report in accordance with DRD 1236MA-001.

The contractor shall prepare and deliver Badged Employee and Remote IT User Listings in accordance with DRD1236MA-002.

The contractor shall prepare and deliver Contractor Employee Clearance Documents in accordance with DRD 1236MA-003.

The contractor shall prepare and deliver Position Risk Designation for Non-NASA Employee in accordance with DRD 1236MA-004.

## **5.0 Safety**

The contractor shall establish and implement an industrial safety, occupational health, and environmental program and provide a signed Safety, Health, and Environmental (SHE) Work Agreement in accordance with DRD 1236SA-001.